Three Clinical Lectures
ON
GENERAL SURGICAL ANÆSTHESIA.

Delivered at the London Hospital,

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EMERITUS LECTURER ON ANÆSTHETICS.

LECTURE I.

Delivered on June 14th, 1907.

THE THREE MAIN PRINCIPLES OF ANÆSTHETISATION.

GENTLEMEN,—The phenomenal advance which took place in surgery during the latter half of the nineteenth century was due, as you are aware, partly to the discovery and use of anæsthetics and partly to the introduction into practice of those principles with which the name of Lister will be for ever associated. So vast and far-reaching have been the benefits which mankind has derived from these two great discoveries that any remarks upon their relative importance would be irrelevant. At the same time one may perhaps be permitted to compare the developments which have taken place in general anæsthetisation, on the one hand, with those which have occurred in antiseptic and aseptic principles on the other. The labours of workers upon the lines originally laid down by Lister have been so fruitful that, at the present time, every recently qualified medical man carries with him into practice a deeply-rooted knowledge of the doctrines of asepsis; and he is able, as the result of the training he has received in those doctrines, to apply them successfully and to see for himself what an important part they play in combating disease. But is every recently qualified practitioner equally imbued with the true principles and conversant with the best methods of anæsthetisation? Is he as fully alive to the risks of departing from those principles as he is of the risks of departing from the principles of asepsis? I fear that these questions must be answered in the negative and that there is a regrettable want of parallelism in the developments which have followed the two great discoveries in question. A close scrutiny of the best reported cases in which death has occurred during general anæsthesia convinces me that in a large number of these it was a lack of appreciation of the principles of anæsthetisation which was the important factor, and it is, therefore, with these principles that I propose to deal to-day. It is not contended, of course, that the mere recognition of abstract propositions or principles will suffice to ensure the anæsthetist against difficulties and accidents, but without such fundamental propositions or principles to guide him he will be constantly drifting into dangerous waters, from which he may find it difficult to extricate himself. Before the action of anæsthetics and the complications of general anæsthesia were fully understood patients undergoing surgical operations under a particular anæsthetic were believed to incur a risk which was definite or special for that anæsthetic, being determined by the number of persons per 1000 who, from "idiosyncrasy" or other unknown causes, were specially liable to be unfavourably affected. But such views are no longer tenable. We now know that the risks of general anæsthesia are neither in the patient nor in the anæsthetic, but in the anæsthetist; and that if the present unnecessarily high death-rate from anæsthesia is to be lessened certain reforms which I have elsewhere indicated—reforms having for their object a higher standard of efficiency in those who administer anæsthetics—must be introduced. Everyone who has had experience in this department of practice sooner or later finds himself working on certain broad lines of procedure, and it is to these broad lines that I would now direct your attention. Let me first specify what may be regarded as the three main principles under which anæsthetics should be administered and, secondly, let me illustrate the importance of these principles by giving you examples of the most common departures from them.

The three main principles of general, as opposed to local anæsthetisation are: (1) the selection of appropriate anæsthetics; (2) the maintenance of unembarrassed, and particularly of unobstructed, respiration during and after the administration; and (3) the proper adjustment of the percentage or strength of the anæsthetic gas or vapour. I do not propose to weary you with any elaborate classification as to the selection of anæsthetics, the causes of intercurrent asphyxia, or the symptoms produced by this or that gas or vapour percentage. I merely wish at the present moment to draw your attention to the importance of these three main principles.

1. THE SELECTION OF APPROPRIATE ANÆSTHETICS.

One of the commonest errors in the selection of anæsthetics is the employment in cases of potential or actual respiratory difficulty of an asphyxiating agent such as pure nitrous oxide, or of an asphyxiating method such as that by which ether and ethyl chloride are respectively administered. Although nitrous oxide is the safest anæsthetic for the vast majority of subjects its use may be fraught with considerable danger in certain patients. Thus it should never be given when the air-way is encroached upon, as in angina Ludovici, in thyroid enlargement, in sublingual abscess, or in allied conditions. The safest and best anæsthetic in such cases as these is usually the C.E. mixture (two parts of chloroform to three parts of ether), and the inhaler should be one which in no way restricts the air-supply. In weakly patients and children a simple Skinner's mask will answer best. Should the patient be at all dyspnœic all methods of anæsthetisation involving rebreathing must be carefully avoided, and chloroform is generally to be preferred to other anæsthetics. In all the cases to which reference has just been made ethyl chloride is contra-indicated. Ether should not be given to emphysematous, bronchitic, or phthisical subjects.

Patients with cardiac disease pass through general anæsthesia remarkably well provided that the proper anæsthetic be chosen and that asphyxiating methods be avoided. Generally speaking, nitrous oxide and oxygen and the C.E. mixture are to be preferred to other anæsthetics. Both pure nitrous oxide and ethyl chloride should be avoided—at all events in advanced cases. It is an interesting fact that whilst nitrous oxide free from oxygen must have been administered to thousands of patients with all forms of morbus cordis singularly few fatalities have been recorded in such subjects. The most probable explanation of this circumstance is that when pure nitrous oxide is administered to a patient with advanced cardiac disease ample warning is afforded by his appearance of the approach of danger, and common sense dictates the withdrawal of the inhaler at the proper juncture. I have, however, met with a considerable amount of clinical evidence which seems to indicate that when a patient with a feeble, fatty, or dilated heart is subjected to the full effects of pure nitrous oxide the strain upon the cardiac walls at the acme of the administration may be such as to leave its mark, at all events for a time, upon the heart itself. If it be impracticable to administer oxygen with nitrous oxide, an occasional breath of air should be permitted during the inhalation of the pure gas in order to prevent any undue asphyxia.

Another common error in the selection of anæsthetics is the use of chloroform or a chloroform mixture for the operation of circumcision. In the ensuing lecture I shall place before you clinical evidence to prove that during this and similar operations there is a great tendency, unless the patient be deeply anæsthetised, for reflex respiratory, as opposed to reflex circulatory, disturbance to arise, and this respiratory disturbance is far more likely to prove dangerous under chloroform than under ether. Ether, in fact, is doubly indicated—first, because it can be safely and quickly pushed to that point at which reflex respiratory difficulties will not arise; and, secondly, because, if it has not been pushed to that point when the operation begins and such difficulties arise, the circulation will hold out for a much longer time than in the case of chloroform. The operation of circumcision is a short one and even in the case of infants there is practically no risk of pulmonary sequelæ following the use of ether. For infants I would recommend you to use a small Rendle's (celluloid) mask with a very small piece of sponge within it and to sprinkle ether from a drop-bottle in small quantities at a time upon the sponge, correcting the breath-holding (which often disconcerts the inexperienced anæsthetist) by frequently rubbing the lips with a handkerchief or towel. In children of from two to seven or eight years of age a few drops of chloroform or C.E. mixture may be used as the induction agent, and the

administration then continued by means of ether and the Rendle's mask. In older subjects the ordinary methods for obtaining ether anæsthesia will be applicable. For similar reasons to those which I have here given ether is specially indicated for short rectal operations.

In a considerable proportion of general surgical cases I find that the C.E. mixture produces better results than any other anæsthetic with which I am acquainted. Although a great deal has been said against anæsthetic mixtures I must confess that I have never met with any clinical phenomena to support the adverse opinion which many hold. The C.E. mixture seems to produce rather better results than the A.C.E. mixture, probably because the patient is spared the process of eliminating the alcohol which he necessarily inhales when the latter mixture is used. It has in my hands answered better than any other anæsthetic for obtaining what may be termed the fine adjustments in anæsthetisation. As I shall presently point out, there is in the vast majority of cases a neutral borderland in the realm of general surgical anæsthesia, and if this particular borderland can be reached and retained safe and

FIG. 1.

quiet anæsthesia may be relied upon. In a large number of abdominal cases and in most patients over 60 years of age this mixture answers admirably. Much depends, however, upon the actual means employed for administering the C.E. mixture. Rendle's inhaler and its numerous modifications fail to supply a vapour of equable strength; they not unfrequently allow the liquid anæsthetic to run out of the inhaler and thus to redden or blister the face, whilst they are liable, if continuously applied, to produce over-dosage.

FIG. 2.

Having used the inhaler here figured for about three years I am able to speak with confidence as to its merits.[1] It consists of a simple metal cylinder capable of holding a sponge and surmounted by a wide circular opening through which the anæsthetic is poured (Fig. 2). This air opening is so large that it is difficult, if not impossible, to administer a dangerously high vapour-percentage. The inhaler errs on the side of safety, for it is necessary, when anæsthetising comparatively insusceptible patients, to temporarily and loosely cover the circular air-opening with the hand. In ordinary cases the sponge may be kept thoroughly wet, any excess of the anæsthetic mixture simply running through the lower part of the cylinder upon the hand of the administrator. It is important that the sponge should be coarse and that it should only loosely fit the metal cylinder.

[1] This inhaler is made for me by Messrs. Barth and Co., 54, Poland-street Oxford-street, W.

2. THE MAINTENANCE OF UNEMBARRASSED, AND PARTICULARLY OF UNOBSTRUCTED, RESPIRATION DURING AND AFTER THE ADMINISTRATION.

It is often supposed that in administering an anæsthetic the function of respiration will remain unimpaired provided the agent in use be not pushed to a toxic degree. This, however, is a grave error, for breathing far more commonly comes to a standstill from causes other than overdosage itself. There are, in fact, four distinct modes of respiratory arrest during general surgical anæsthesia. Thus breathing may cease (*a*) from the presence of muscular spasm or some other condition *within* the air-passages, causing occlusion of those passages; (*b*) from some *external* agency preventing lung expansion; (*c*) from a diminution or arrest of the blood-supply to the respiratory centres; and (*d*) from the toxic effect of the anæsthetic upon those centres. I need not here specifically enumerate the various immediate causes of respiratory embarrassment and failure; they may all be arranged under these four headings. What I am anxious to point out to you now is the paramount importance of maintaining a free air-way in order that the nervous energy which is available for working the respiratory pump may have its full play and produce lung expansion and contraction, thus insuring efficient pulmonary circulation and blood aeration.

One of the most frequent causes of difficulty in inducing and maintaining anæsthesia is the presence, before the administration, of partial or complete nasal obstruction. The anæsthetist should therefore particularly notice whether the patient has a so-called nasal intonation and if it is obvious that the nasal channels are inadequate a mouth-prop should be placed between the teeth. Another important factor in determining the presence or absence of difficulties during anæsthetisation is the "bite" of the patient. Given a slight degree of nasal obstruction, good teeth, and a somewhat ill-developed and under-hung lower jaw, with considerable space, antero-posteriorly, between the upper and lower incisors, respiratory difficulties will almost certainly arise unless special precautions be taken. Whenever practicable oral breathing should be secured and maintained in preference to nasal breathing, for the latter is often inadequate, retarding the onset of anæsthesia and leading to hyperpnœa, venous engorgement, and abdominal rigidity. It is often possible, by securing oral in place of nasal breathing, to change completely, both literally and figuratively, the complexion of the case. Free oral breathing is particularly desirable in emphysematous and other subjects who display breathlessness before anæsthetisation. It is not always an easy matter, however, to obtain oral breathing, owing to the natural tendency for the tongue and palate to remain in apposition. The insertion of a mouth-prop or gag by no means necessarily ensures an oral air-way; and if this form of breathing be desired it may be necessary, especially in muscular and obese subjects, to adopt some simple means of separating the tongue from the palate. Even at the commencement of inhalation, when the patient is conscious, oral breathing has advantages over nasal, for not only does it ensure a free and continuous interchange between the gaseous contents of the lungs and the anæsthetic gas or vapour, but it largely prevents those suffocative sensations which sometimes distress and alarm patients.

I cannot too strongly urge upon you to make yourselves absolutely certain that respiration is being freely performed during anæsthetisation. When I tell you that even the most experienced anæsthetist may occasionally fail to notice that the air-way has become noiselessly occluded you will see that it is not always an easy matter to be sure that air is entering and leaving the chest. The anæsthetist should either hear or feel every respiration. Except when a bag inhaler is in use visual observation is valueless, for, as you are doubtless aware, abdominal and thoracic movements may continue for a time after complete occlusion of the airway. Stertor and stridor always indicate a tendency towards occlusion and they should not be permitted to become too pronounced. Whilst there is no objection to the presence of

an exceedingly slight and barely audible obstruction to the entry of air—indeed, this scarcely noticeable condition has its advantages—anything more than this, particularly if it persist for some time and the patient's general condition be unsatisfactory, will be liable to be followed by undesirable effects. Symptoms of intercurrent asphyxia from faulty posture, persistent stertor or stridor, the presence of laryngeal mucus, &c., are frequently mistaken for those of surgical shock or chloroform overdosage. I could place before you a large amount of clinical evidence to prove that this auto-asphyxiation, particularly if it come about, as it usually does, in an insidious manner, may not only seriously complicate an administration, but may necessitate its postponement or abandonment. Whilst the circulation of a patient with a healthy cardio-vascular system may suffer remarkably little during a considerable degree of respiratory embarrassment, that of a feeble anæmic subject will quickly show signs of failure. It is particularly in patients of the latter class that intercurrent asphyxia should be avoided. If the operation be one which necessarily produces some respiratory embarrassment the quantity of anæsthetic administered should be correspondingly reduced.

We must not forget that the responsibilities of the anæsthetist do not necessarily cease with the insertion of the last suture or the application of bandages. There has been a tendency in recent years to over-anæsthetise patients, with the result that at the conclusion of operations they are often left to recover as best they may from the unnecessarily large quantities of ether with which they have been saturated. This practice has come into vogue mainly, I believe, as the result of a very laudable desire on the part of the anæsthetist to provide the surgeon with the most ideal conditions for his operations. Reflex movements, muscular rigidity, retching, coughing, &c., may doubtless be prevented by this deep narcosis, but a heavy price is sometimes paid for the benefits received in the form of pulmonory sequelæ and persistent vomiting. To saturate a patient with ether for an hour, or possibly for two hours, at a time is not without its own special risks; but these risks become considerably augmented when, as is often the case, these patients, still deeply etherised, are put back to bed upon their backs, with deep moist breathing, insensitive corneæ, and dusky colour. If it be found impracticable towards the conclusion of the operation so to adjust the degree of anæsthesia that the patient begins to show signs of recovery immediately he is put back to bed—the ideal at which we should aim—he should certainly be carefully watched by the anæsthetist and if possible kept upon his side till signs of semi-consciousness present themselves. The airway may readily become temporarily obstructed during the recovery period, particularly if blood or mucus be present within the larynx, as after operations for adenoids. Whenever there has been any undue mucous secretion, or whenever blood or vomited fluid has entered the larynx or trachea, the patient should be placed first of all upon one side for an hour and then upon the other, so that both lungs may have a chance of expanding. I have recently met with a case in which a nurse failed to carry out these instructions and the patient, whose air passages contained some blood at the conclusion of a very long operation, was kept upon one side for 12 hours or more, with the result that the temperature rose and some crackling sounds became audible in the lung on that side. The patient was then placed on the other side with the result that she quickly coughed up some altered blood, the temperature at once fell, and the physical signs vanished. It is in the highest degree probable that had this patient been kept upon one side or upon her back a local broncho-pneumonic process would have resulted. The same principle that guides us in the administration—that of maintaining a free airway and free lung expansion—should also guide us in the management of patients during the recovery period.

3. THE PROPER ADJUSTMENT OF THE PERCENTAGE OR STRENGTH OF THE ANÆSTHETIC GAS OR VAPOUR.

Before considering the different levels of anæsthesia which are required to meet particular conditions I should like to say a few words upon what may be termed the average level of anæsthesia for surgical operations in general. In healthy and moderately healthy subjects full anæsthesia should, as a rule, be secured at the outset—i.e., the first incision should be made just as the corneal reflex is disappearing, but from this point onwards, when using chloroform or a chloroform mixture, it is advisable and generally possible to permit a very slight degree of this reflex occasionally to manifest itself. With ether, corneal insensibility may in the great majority of cases be safely maintained throughout, although an attempt should be made not to push the administration unnecessarily, for deep etherisation for prolonged periods has its own special risks afterwards. I would here submit to you an important proposition which, if not capable of application in every case of anæsthesia, is certainly capable of application in the vast majority of cases. It is that provided the respiration be freely proceeding and that the corneal reflex be present even to a slight degree the patient's general condition at the moment of observation may be regarded as satisfactory. Speaking generally, we may say that the presence of a corneal reflex indicates the existence of a sufficient degree of respiratory energy to carry on respiration and a sufficiently high blood pressure to carry on circulation. The respiratory energy will, of course, be useless if any obstruction to breathing be present, just as the vaso-motor tone will be useless if from any cause the arterial system be empty. But provided there be no obstruction to respiration and that the arterial system contain a sufficient quantity of blood, the anæsthetist need not fear any central or paralytic failure of breathing on the one hand or any circulatory failure either from the anæsthetic itself or from surgical shock on the other. If, then, whilst respiration is freely proceeding you can so adjust your administration as to retain a trace of corneal reflex you need not, in ordinary surgical cases, pay any attention to the circulation. There is a great tendency amongst those who have had but little experience to keep up unnecessarily deep anæsthesia. For example, let us imagine that we are anæsthetising a patient with chloroform and that the surgeon is half-way through a radical breast operation. Should the corneal reflex be present or should it not? The answer to this question is that it should be present, but in a slight degree; in other words, that the patient should be kept within what may be called the neutral borderland of anæsthesia, being neither too lightly nor too deeply anæsthetised. If the corneal reflex be wholly annulled for considerable periods the patient will be liable to circulatory depression *as the direct result of the operation;* hæmorrhage, though slight during the operation, will be liable to take place afterwards; the recovery of consciousness will be unnecessarily prolonged; and after-vomiting will be favoured. To sum up, we may say that by the most careful attention to symptoms the anæsthetist may, in the great majority of cases, and particularly towards the conclusion of operations, permit the patient to display a slight trace of corneal reflex.

Of the different factors which should be considered in adjusting the strength of the anæsthetic gas or vapour, one of the most important is the particular type of subject. Children, aged persons, anæmic patients, and those who have become exhausted by illness or disease naturally require weaker percentages of anæsthetic than others. I have known a patient with pernicious anæmia to display epileptiform twitchings—the characteristic signal that the administration has been pushed sufficiently far—during the third inspiration of pure nitrous oxide gas. It is a common mistake when anæsthetising comparatively feeble subjects to use a Clover's ether inhaler in much the same way as it should be used for healthy and vigorous persons. In weak and exhausted patients the re-breathing factor should either be made use of to a very slight extent or altogether proscribed, whilst the ether indicator need not be pushed beyond "2." Patients with any pre-existing respiratory derangement require very cautious anæsthetisation and dilute vapour percentages. In bad cases of empyema, for example, only the lightest anæsthesia is permissible. Similar remarks apply to patients who, from cerebral disease, uræmia, the administration of an opiate, or other causes, are in a dazed and torpid state, and also to those who are suffering from traumatic shock. But even healthy patients may unexpectedly prove to be singularly susceptible to anæsthetics and it is the duty of the anæsthetist, by carefully watching the effects produced by the agents he employs, to take the measure, so to speak, of each patient. Tall, plethoric, muscular, and particularly alcoholic subjects generally require very energetic treatment before full anæsthesia can be secured. To attempt to anæsthetise such patients in cold weather with an ether inhaler capable only of supplying a comparatively weak vapour will certainly lead to difficulties.

The next important factor in adjusting vapour percentages is the nature of the operation. Certain operations require

for their performance a profound narcosis in order to prevent reflex movement, retching, or other incidents which might embarrass the surgeon or prejudicially affect the success of the operation. The laryngeal, peritoneal, rectal, vesical, and ocular reflexes are amongst the latest to disappear, so that in operations upon these parts full narcosis is usually necessary. The local application of cocaine is a most useful adjunct to chloroform anæsthesia in intra-laryngeal operations, for it enables the anæsthetist to work with a somewhat lighter chloroform anæsthesia than would otherwise be necessary. One of the greatest problems of the modern anæsthetist is the maintenance of deep anæsthesia during certain intra-abdominal manipulations. Whilst there can be no doubt that such an anæsthesia is convenient, and in some cases almost essential to the surgeon, it certainly cannot always be obtained in horizontally placed patients under chloroform without directly subjecting them to the risk of surgical shock of a circulatory type. When this profound anæsthesia is desired it is often wise, therefore, to employ ether. In some cases the administration of morphine before or during chloroform anæsthesia is very useful. When muscular relaxation is essential, as in the reduction of dislocations, abdominal examinations, &c., deep anæsthesia must also be obtained, but great care is necessary not to exceed the limits of safety. On the other hand, most operations within and about the upper air-passages, and particularly those in which hæmorrhage is profuse, require only a moderate anæsthesia; and the same may be said of most operations upon the lungs and pleuræ. It is a mistake, for example, to keep up a very deep chloroform anæsthesia for operations upon the thyroid gland, for those involving the deep structures of the neck, and for operations upon the brain and spinal cord, and the same may be said of those intra-abdominal cases which admit of being conducted during moderate anæsthesia. Another factor in the adjustment of the strength of vapour is the particular stage of the operation in hand. We have already seen that deep anæsthesia should, as a rule, be secured before the operation commences, and that from this point onwards a slight trace of corneal reflex should, if possible, be preserved. There is a point in many administrations which may be called the "critical juncture," and at this point great care is always necessary lest the anæsthesia be too profound. It occurs in abdominal cases just when the abdomen is being opened or just afterwards; in cases of nephrectomy when the pedicle is being pulled upon; in prostatectomy when the urethra is being torn through; and in hysterectomy when traction is at its height. In order to prevent reflex movement at the moment of the skin incision and abdominal rigidity subsequently, the anæsthetist is often tempted in abdominal surgery to push the anæsthetic unduly at the commencement, and if chloroform be the agent in use two risks are thereby incurred—that of overdosage and that of circulatory shock when the abdominal manipulation commences. Contrary to time-honoured doctrines, I would submit to you that at all these junctures the anæsthesia, though deep, should not be too profound. In operations within and about the throat and nose, attended by free hæmorrhage, there is also a critical juncture. It arises at the beginning of the operation—i.e., before the larynx has taken on, and has become practised in, its new function—that of preventing (by swallowing and coughing) the entry of blood into its cavity. In these cases great care must be exercised at the point indicated. There are many operations in surgery in which the manipulations of the surgeon successively involve organs or regions differing widely in their sensibility, and it is often necessary, therefore, to vary the strength of anæsthetic vapour *pari passu* with these manipulations. Sometimes, of course, it is quite impossible to reduce the strength of anæsthetic at the desired moment owing to the surgeon requiring complete muscular relaxation, and it is under such conditions that a change from chloroform to ether is advisable. Profuse or protracted hæmorrhage during any operation should generally be taken to indicate a lessening of the depth of anæsthesia; and the same may be said of cases in which circulatory shock has occurred, and of those in which unavoidable intercurrent asphyxia is present. Considerable practice is necessary in the adjustment of these different strengths of anæsthetic vapour, particularly if no regulating apparatus be used. At the same time such adjustments have their great advantages not only in the direction of providing the surgeon with the anæsthesia required, but also in the direction of ensuring satisfactory recovery.

The Croonian Lectures

ON

PLAGUE.

Delivered before the Royal College of Physicians of London on June 18th, 20th, 25th, and 27th, 1907,

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LECTURE III.[1]

Delivered on June 25th.

IMMUNISATION AGAINST DISEASE.

MR. PRESIDENT AND FELLOWS,—The next question from a preventive aspect is whether there is a prophylactic against plague similar to that of vaccination against small-pox, and if so what is its value. The question naturally leads to a consideration of Haffkine's prophylactic against plague and of methods of artificial immunisation. Jenner's great discovery lay in the fact that he ascertained that the passage of the small-pox virus through the cow fixed its properties in such a manner that the immunising effects of the small-pox virus were retained while its power of producing the disease was destroyed. The defects of inoculation with the small-pox virus consisted in the danger to the inoculated which sometimes attended the operation and in the risk of infection which sometimes spread from the inoculated to other persons. Notwithstanding these disadvantages inoculation was practised as the lesser evil because in the majority of cases its effects were comparatively mild and it conferred a very high protection. Inoculation against disease is thus a very old method of protection. In some of the ancient shastras written contemporaneously with the works of Menoo inoculation is mentioned as being practised as a preventive or modifier of small-pox. Even inoculation against plague has been practised among the Turks.

The Brahmins who performed the inoculations against small-pox in India instituted certain procedures to avoid the defects as much as possible. They made it a point to inoculate if possible all the children in the village at the same time so as to prevent natural infection; they selected the virus from a discrete case and they usually kept it several days before inoculating it into individuals, for they found by experience that it produced a milder disease when thus kept than when directly transmitted from person to person. In later times such precautions were often relaxed with results not nearly so satisfactory. In China the inoculations against small-pox were often practised by ignorant men and instead of the small-pox virus being inoculated through the skin, which generally gives a mild attack, it was not infrequently placed in the nostrils and a very severe attack of the disease usually followed. When in China I came across an instance of this kind where some 17 persons had been inoculated in this manner and where the results were serious.

The older methods of inoculation, whether for small-pox or plague, depended on the employment of crude material containing the living germs of the disease and over these there was little or no control. Sometimes the material was efficacious and harmless, at other times it was dangerous. There was also risk of the method, while protecting the individual inoculated, spreading the disease to healthy persons. The discoveries of Jenner, Pasteur, and Haffkine have introduced new methods by which the material employed is fixed in strength, protective and harmless to the individual, does not spread the disease, and is fully under control.

HAFFKINE'S CHOLERA VACCINATION.

There is a difference between the cholera and plague inoculations introduced by Haffkine. In cholera a living vaccine is employed; in plague a devitalised or chemical vaccine is used. The cholera vaccine needs to be fixed in its strength in order that the microbe shall behave constantly in the same manner when injected alive into man. It was the non-recognition of this fundamental principle which led to

[1] Lectures I. and II. were published in THE LANCET of June 29th p. 1757) and July 13th (p. 73), 1907, respectively.

Ferran's failure in Spain. He practised inoculation against cholera on the same principle as the old inoculations against small-pox. The crude microbe isolated from a cholera patient was employed without fixing its strength. In Haffkine's method of inoculation against cholera there are two vaccines. The cholera microbe is first fixed at a high stage of virulence by passing through animals and is maintained at its high strength by the same process. It is necessary to mention that the cholera microbe requires air for its life and accordingly in the process of passing it through a succession of animals it is necessary to alternate this procedure with aeration of the microbe for some hours, otherwise it will die. It is in this way that the strong vaccine is obtained. But as this vaccine when injected under the skin of animals is apt to produce a slough, an attenuated microbe is used as a first vaccine. The attenuation is attained by a prolonged aeration and exposure to a continuous high temperature.

The advantage derived from using a living vaccine is that the immunity is higher and of longer duration. The disadvantage is that it has always to be prepared afresh by a bacteriologist and consequently difficulties arise in its preparation and distribution over large and numerous areas, whereas a devitalised or chemical vaccine can be preserved for a considerable time and sent out to great distances and administered by any physician who knows how to employ it aseptically.

Toussaint was the first to introduce chemical vaccines. He employed a vaccine of this kind against anthrax prepared from the heated defibrinated blood of dead animals. The method worked well as long as there were no spores in the blood. The heat to which the blood could be subjected without being coagulated—viz., 57° C.—would not destroy spores, so that if these were present and animals were inoculated the result was the death of the animals and the danger of spread of anthrax to other animals.

Many experiments were tried on similar lines by others with different kinds of microbes and on different animals, but the immunity obtained by such chemical vaccines was so short-lived that the methods could not be used for practical purposes, and so it happened that up to the time of the cholera inoculations inclusive all vaccinations were done with living vaccines.

HAFFKINE'S PLAGUE INOCULATION.

When the problem of preparing a vaccine against plague presented itself Haffkine with his experience of the cholera vaccine quickly realised the importance of endeavouring to discover a chemical preparation of practical utility. The reason for this was the distribution of the plague in numerous villages and small towns and the impossibility of obtaining a sufficiently large number of bacteriologists to prepare and use a living vaccine. With these facts in front of him Haffkine pursued several lines of research. One of these was to vary the microbial preparation and to study the effect on each of them of different processes of sterilisation. Artificial cultures of the microbe, the blood and exudation of animals dead from plague, and the pulp of their different organs were taken and subjected to heating, drying, chloroform, carbolic acid, lactic acid, or essential oils.

Inoculation with the dried powder of pulverised organs and blood of animals dead from plague was found to be by far the most effective. A few years ago Dr. Klein made a very careful investigation in this direction and was successful in preparing a powder possessing very high immunising properties. In India, however, dying animals are rapidly invaded with intestinal vibrios and bacilli and the heating and drying which were employed to devitalise the plague microbe were not sufficient to kill the spores of these extraneous microbes, so that the same difficulty met with by Toussaint recurred here in another form. Sometimes also the powder appeared sterile in culture but when injected into an animal killed it, plague bacilli being present in its blood; at other times the animal died apparently from toxins, no microbes being found. When the animal did survive it was very thoroughly vaccinated but for the reasons mentioned this method was set aside.

The most practical method of preparation was to use artificial cultures and sterilise them by heat, but it was found that the animals naturally susceptible to plague, such as rats, guinea-pigs, and monkeys, could not be vaccinated by this preparation or required many injections extending over several weeks before any immunity was established. Experiments, however, showed that an animal not naturally susceptible to plague—viz., the rabbit, which possesses a relatively high degree of resistance even to injected plague—could be rendered immune with this chemical vaccine. Influenced by this circumstance and not deterred by the other Haffkine determined to ascertain whether man could not be immunised in a similar way to the rabbit.

On *a priori* reasoning it seemed improbable but the experiment first made in the outbreak of plague in His Majesty's House of Correction at Byculla in Bombay proved the possibility of such immunisation. This epidemic only lasted a week after the inoculations but still it seemed to show that during that short time benefit had accrued from the use of the prophylactic. The result obtained at the Byculla jail was subsequently confirmed by many experiments made under varied conditions and on a larger scale, and finally, it has been established that the immunity in man is not only real and of a satisfactorily high degree but lasts for a considerable time.

These two circumstances demonstrated for the first time the practicability of immunisation by a chemical vaccine. The success of the method encouraged a trial of immunisation on similar lines against typhoid fever, and this also appears to have been attended with successful results.

Experience of the effect produced by the cholera vaccines in India from 1893 to 1896 demonstrated that immunity was obtained against attacks of cholera, but when the inoculation failed and the person inoculated was subsequently attacked the fatality was practically the same as among those not inoculated. This result pointed to antimicrobial immunity being obtained but not to antitoxic immunity, and appeared to be related to the fact that the cholera vaccine consisted of the bodies of living bacilli obtained by cultivation on solid media. Haffkine realised that the defect attaching to the cholera vaccines should, if possible, be remedied in the production of the plague prophylactic and endeavoured to prepare a material which would give, not only an immunity against attack, but also at the same time diminish fatality when an attack occurred.

In the case of microbes producing extra cellular toxins, such as diphtheria, antitoxic properties are obtained in animals by injection of the toxins. Plague cultures in fluid media do not show the presence of any appreciable toxins in the filtrate, but Haffkine observed that when he injected into animals sterilised old fluid cultures of the plague bacillus he obtained a reaction which he could not obtain to the same extent when using the microbes and the filtrate separately. This appeared to indicate that the fluid possessed properties of its own. It encouraged him to try the combination of the microbes and the fluid which later was proved to be a success. The method adopted was to use old cultures rich in bacilli and their secretions. A suitable medium for obtaining such cultures was peptone broth to which were added a few drops of butter or oil. By the end of six weeks the culture is ripe for use and its purity is ascertained by drawing off a small quantity and subjecting it to the tests already described in the first lecture. The culture is then heated at from 55° to 60° C. for 20 minutes, with the result that the microbe is devitalised. The prophylactic then becomes a chemical drug with fixed properties and can be used in measured doses like other drugs. The preliminary fixation of the biological and pathogenic properties of the microbe is under such conditions not an essential process as in the case of cholera and small-pox, where living vaccines are introduced into the system.

The dosage of the prophylactic was determined by careful observation of its effects on man, which led to the adoption of the principle gathered from the study of the results of the cholera inoculations in India. This principle consists in regulating the dose with the view of producing an average temperature of 101° F. The same dose in different individuals gives rise to different ranges of temperature. Following the above standard it is generally observed that in one-third of the inoculated the temperature may rise to 102° F. and above. This proportion should not be exceeded. The thermometer is thus used as the indicator of the reaction. There is no testing of the blood in plague or cholera inoculation for the purpose of ascertaining what dose shall be given. The information obtained by the thermometer has been found to be a reliable guide and supplies a very simple and practical method of regulating the dose. It is a notable fact that in cholera and plague inoculations no instance has been observed of the inoculated groups having been rendered

by the inoculation at any time more susceptible to these diseases than the uninoculated.

THE RESULTS OF THE USE OF THE PROPHYLACTIC.

The harmlessness of the prophylactic was first established by the inoculation of several hundred volunteers, European and Indian. Then its protective effect was ascertained for the first time at the height of an outbreak of plague at the Byculla jail and certain facts were observed by Haffkine which enabled him to arrive at some very important conclusions. These were: (1) that one injection of three cubic centimetres of the prophylactic was sufficient to protect during an existing epidemic; (2) that inoculation was powerless to arrest the disease in those in whom the symptoms have already appeared or develop in a few hours after inoculation; (3) that the inoculation mitigated or aborted the disease in those who were in the incubation stage and had been infected three or four days previously; and (4) that the prophylactic, unlike the vaccines for cholera, rabies, anthrax, or small-pox, exercised its protective effect in less than 24 hours, acting in this respect with a rapidity which was only known in antitoxic sera.

Of these deductions that relating to the effect of the vaccine on individuals in the incubation stage and its power of arresting the development of infection or mitigating the disease appears to be the most incredible, particularly in view of the shortness of the incubation period in plague. Calmette and his co-workers as well as other bacteriologists asserted that an individual inoculated not only in the incubation period but also a short time before infection would succumb to the disease and recommended that no "contacts" or persons exposed to infection should be inoculated. The Indian Plague Commission of 1889, though not endorsing this view, was of opinion that inoculation was not likely to effect any protection for the first five days and was against Haffkine's conclusion as to the benefit of the inoculation in the incubation period. Subsequent study of the subject, however, induced Sir Almroth E. Wright to adopt Haffkine's views, and it is in conformity with the results obtained by Haffkine's inoculation in the incubation stage of plague that he based his opsonic method of treating with vaccines patients suffering from furunculosis, sycosis, acne, and other bacterial infections. The fact of the prophylactic immunising so rapidly and being beneficial in the incubation stage not only excludes the danger that was feared but allows of the application of the prophylactic in infected houses and localities, and generally during the prevalence of an epidemic.

Later observations have fully confirmed Haffkine's conclusions which stand to-day without modification. It is not from observations on animals but from observations on man that the question as to the action of Haffkine's prophylactic has to be worked out and has to be judged. This test has now been applied in many places and under various conditions and always with the same successful result. The observations are divisible into two classes—viz., those that have been made on a small scale in restricted communities living under special administrative and medical control, and those made on a large scale. Owing to the circumstances in which the first class, conducted on a small scale, were carried

CLASS I.—TABLE A.

OBSERVATIONS ON THE WORKING OF HAFFKINE'S SYSTEM ON A SMALL SCALE, SPECIAL OBSERVATIONS BEING CARRIED OUT ON RESTRICTED COMMUNITIES.

Name of locality.	Non-inoculated.						Inoculated.							
	Non-inoculated.	Cases.	Percentage of cases to population.	Deaths.	Percentage of deaths to population.	Proportion per cent. of deaths to cases.	Inoculated.	Cases.	Percentage of cases to population.	Deaths.	Percentage of deaths to population.	Proportion per cent. of deaths to cases.	Percentage of saving in cases.	Percentage of saving in deaths.
1. Byculla jail	172	12	7·0	6	3·5	50·0	147	2	1·4	—	0	0	80 0	100·0
2. Umerkhadi jail...	127	10	7 9	6	4·7	60·0	147	3	2 0	—	0	0	74·1	100·0
3. Undhera village (plague infected houses)	64	27	42 2	26	40·6	96·3	71	8	11·3	3	4·2	37·5	73·3	89·6
4. Hubli (mill)	75	—	—	20	26·66	—	1098	—	—	30	2·7	—	—	89 7
5. Hubli (employees of Southern Maratha Railway)	760	35	4·6	21	2·7	60·0	1260	11	0 9	2	0·2	18 2	81·03	94·1
6. Dharwar jail *	—	—	—	—	—	—	374	—	—	—	—	0	—	100 0
7. Broach (Parsee population) ...	763	9	1·2	5	0·6	55·6	1080	2	0·2	1	0·1	50	88·3	85·7
8. Broach (tailors' camp)	135	10	7·4	6	4 4	60 0	90	—	0	—	0	0	100·0	100·0
9. Belgaum† (49th Battery R.F.A. Native followers)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10. Belgaum (Army Hospital Corps, 1897)	3	2	66·7	2	66·7	100·0	80	—	0	—	0	0	100·0	100 0
Ditto, 1899	5	1	20·0	1	20·0	100 0	79	2	2·5	2	2·5	100·0	87·3	87 3
11. Major Forman's servants	2	1	50·0	1	50·0	100·0	28	—	0	—	0	0	100·0	100·0
12. Bulsar Shanchis (oil pressers) ...	35	4	11·4	4	11·4	100·0	261	7	2 7	4	1·5	57·1	76·6	86·6
13. Colaba ward (Chawl), Bombay ...	32	19	59 4	12	37·5	63·2	21	1	4·8	—	0	0	99·0	100·0
14. Poona, Yerowda jail.‡	—	—	—	—	—	—	—	1	0·06	0	0	0	—	—
15. Aden—Jewish community. (31 households infected.)	179	44	24 6	29	16·2	65·9	246	19	7·7	8	3·3	31·2	68·3	79·5
16. Aden (special prison)§	2	2	100 0	1	50·0	50·0	—	0	0	—	0	0	100·0	100·0
17. Aden (Crater Plague Hospital) ...	—	263¶	—	163	—	61·9	—	21¶	7·0	—	33·3	—	—	—
18. Kirkee, near Poona, 1906	12	6	50 0	3	25·0	50·0	1300	5	0·4	1	0·1	20·0	99·2	99·7

* Four deaths occurred among the prisoners before inoculation. The entire population was inoculated. One case occurred two days after inoculation, which recovered.

† Population 334. Plague continued for 37 days and 23 cases and 17 deaths occurred. Gradually the whole population was inoculated and none of those inoculated were attacked.

‡ Population 1661. Plague continued for 13 days and three cases and three deaths occurred in those who had not been inoculated. 1658 were inoculated by the thirteenth day; of these one was attacked but recovered. There were no further cases.

§ All the prisoners were inoculated excepting two; these two were attacked, one of whom recovered. When inoculation completed no cases, although rats were dying from plague.

¶ Admissions.

These observations were made in places where non-inoculated people had between 1·2 and 100 per cent. of cases and between 0 6 and 66·7 per cent. of deaths, with a proportion of deaths to cases varying between 50 and 100 per cent. The inoculated people of the same places had between 0 and 11·3 per cent. of cases and between 0 and 4 2 per cent. of deaths, with a proportion of deaths to cases varying between 0 and 57·1 per cent. The number of cases among the inoculated was reduced by between 68·3 and 100 per cent., and the number of deaths by between 79·5 and 100 per cent., as compared to the incidence of attacks and deaths among the non-inoculated people of the same place.

out and which permitted of the results being carefully watched and thoroughly checked, they possess a special value on account of their exactness and precision.

The subjoined Table A shows the incidence of plague cases and plague deaths in some 18 small communities under careful control where a part of the inhabitants were inoculated and a part remained not inoculated; most of them are taken from the reports of Colonel W. B. Bannerman, I.M.S. The table shows their comparative liability to attack and death and the percentage of saving in cases and deaths among the inoculated as compared with the not inoculated.

In the Byculla jail, out of 172 not inoculated there were 12 cases of plague, six of which proved fatal, while among 147 inoculated there were only two cases and no deaths—that is, among the non-inoculated 7 per cent. of the population were attacked and 3·5 per cent. of the population died, and the proportion of deaths to cases was 50 per cent., whereas among the inoculated only 1·4 per cent. of the population with two deaths—that is, among the non-inoculated 4·6 per cent. of the population were attacked and 2·7 per cent. of the population died with the proportion of 60 per cent. of deaths to cases, whereas among the inoculated there was 0·9 per cent. of cases to the inoculated population and 0·2 per cent. of deaths with a proportion of deaths to cases of 18·2 per cent. The percentage of saving in cases amounted to 81·03 per cent. and of saving in deaths to 94·1 per cent.

Among these 18 observations there are several where the whole community was inoculated with the result that the plague was arrested. Thus in the Yerowda Jail, Poona, plague appeared and in 13 days caused three cases which were fatal. By the thirteenth day the whole of the jail consisting of 1658 persons were inoculated, one of whom was attacked, but recovered, and there were no further cases. In the Aden Prison all the prisoners were inoculated except two; these two were attacked with plague and one recovered.

CLASS II.—TABLE B.

OBSERVATIONS OF THE WORKING OF THE SYSTEM ON A LARGE SCALE.

Name of locality.	Non-inoculated.						Inoculated.							
	Non-inoculated.	Cases.	Percentage of cases to population.	Deaths.	Percentage of deaths to population.	Proportion per cent. of deaths to cases.	Inoculated.	Cases.	Percentage.	Deaths.	Percentage.	Proportion per cent. of deaths to cases.	Percentage of saving in cases.	Percentage of saving in deaths.
Mora	580 (about)	26	4·5 (about)	24	4·1 (about)	92·3	419	7	1·7	—	0	0	62·7 (ab't)	100·0
Damaun	6,033 (about)	—	—	1482	24·6	—	2,197	—	—	36	1·6	—	—	93·4 (ab't)
Lanowli	377	78	20·7	57	15·1	73·1	323	14	4·3	7	2·2	50·0	79·1	85·7
Kirkee, in 1897	859	143	16·6	98	11·4	68·5	671	32	4·8	17	2·5	53·1	71·4	77·9
Undhera village, whole population	437	27	6·2	26	5·9	96·3	513	8	1·6	3	0·6	37·5	74·8	90·2
Khoja community in Bombay, 1898	9,516 (about)	—	—	77	0·8 (about)	—	3,814	—	—	3	0·08	—	—	90·3 (ab't)
Hubli	17,786	—	—	2348	13·2	—	24,631	—	—	338	1·3	—	—	89·6
Dharwar (town)	16,848	1,100	6·5	889	5·3	80·8	4,231	129	3·04	54	1·3	41·8	52·2	75·7
Gadag (town)	4,163	278	6·6	216	5·2	77·7	13,004	193	1·5	83	0·6	43·0	77·7	87·6
Belgaum (cantonment)	4,558	506	11·1	346	7·59	68·4	4,842	78	1·6	40	0·83	51·3	83·8	89·1
Ahmednager (district)	8,794	563	6·4	415	4·7	73·7	2,493	70	2·8	31	1·2	44·3	56·2	77·0
Aden (Jewish community)	982	83	8·4	65	6·6	78·3	1,190	23	1·9	8	0·6	34·7	77·0	89·7
The Punjab:														
1897–1900	—	—	—	—	—	60·99	306,730	—	—	—	—	36·55	—	—
1900–1901	—	—	—	—	—	60·59	197,278	—	—	—	—	36·50	—	—
1901–1902	3,909,326	266,700	6·8	173,732	4·4	65·14	235,776*	881	0·4	209	0·1	35·07	94·5	97·1
1902–1903	—	—	—	—	—	60·1	505,849	—	—	—	—	30·47	—	—
Re 1 portion of the inoculated in 1902–03	639,630	49,433	7·7	29,723	4·6	60·1	186,797	3399	1·8	817	0·7	23·9	76·5	90·6
Aden, 1905	1052	368	34·9	294	27·9	78·6	898	37	4·1	14	1·6	37·8	88·2	94·4

* Besides 32,789 in Punjab native states.

These observations refer to places where the non-inoculated part of the population had between 4·3 and 34·9 per cent. of cases and between 0·8 and 27·9 per cent. of deaths, with a proportion of deaths to cases varying between 60·1 and 96·3 per cent. The inoculated part of the population had between 0·4 and 4·8 per cent. of cases and between 0 and 2·5 per cent. of deaths, with a proportion of deaths to cases varying between 0 and 53·1 per cent. The number of cases among those inoculated was reduced by between 52·2 and 94·5 per cent. and the number of deaths by between 75·7 and 100 per cent., as compared to the incidence of attacks and deaths among the non-inoculated inhabitants of the same localities. The results observed in the inoculations made on a large scale were therefore substantially the same as those obtained in special observations made for study in restricted numbers of people living under special administrative and medical control.

were attacked and there were no deaths. The percentage of saving in cases was accordingly 80 per cent. and in deaths 100 per cent.

Again, in Umerkhadi jail, out of 127 persons not inoculated there were ten cases with six deaths, whereas among the inoculated there were three cases and no deaths—that is, among the non-inoculated 7·9 per cent. of the population were attacked and 4·7 per cent. of the population died, with the proportion of deaths to cases of 60 per cent., whereas among the inoculated there were only 2 per cent. of the population attacked and none died. The percentage of saving in cases amounted to 74 per cent. and in deaths to 100 per cent.

The results given in these first two practically represent the results in the others; for instance, if the employees of the Southern Maratha railway be taken it will be observed that out of 760 not inoculated 35 cases occurred with 21 deaths, whereas out of 1260 inoculated 11 cases occurred When inoculation was completed no cases occurred although rats were dying from plague.

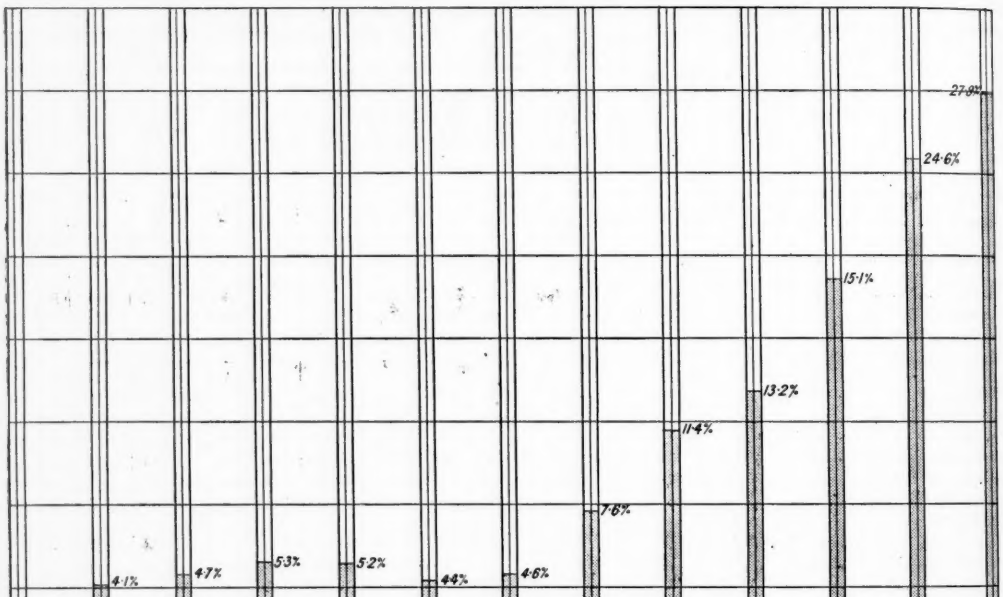
Summing up these experiments as a whole, they were made in places where the *non-inoculated* people had between 1·2 and 100 per cent. of cases and between 0·6 and 66·7 per cent. of deaths, with a proportion of deaths to cases varying between 50 and 100 per cent. The *inoculated* people of the same places had between 0 and 11·3 per cent. of cases and between 0 and 4·2 per cent. of deaths, with a proportion of deaths to cases varying between 0 and 57 per cent. The number of cases among the inoculated was reduced by between 68·3 and 100 per cent. and the number of deaths among the inoculated was reduced by between 79·5 and 100 per cent., as compared to the incidence of attack and deaths among the non-inoculated people of the same places.

The conclusions derived from these observations will be more clearly followed if the comparative results are given in a graphic form and the smaller numbers excluded.

[Professor Simpson here showed upon the screen several diagrams dealing graphically with these figures. In Diagram I. A the most instructive epidemics had been taken which illustrated different degrees of severity on the population, the incidence of plague varying from 1·2 to 59·4 per cent. of the population. The columns were formed on the principle of each column representing 100 inhabitants inoculated or not inoculated.

Diagram I. A showed that the observations were made in epidemics in which the incidence of *attack* in the non-inoculated varied from 1·2 to 59·4. The incidence of attack among the inoculated varied from 0 to 11·3. In general the incidence of attack on the inoculated corresponds to the severity of the epidemic, but this is not uniformly the case, for in a few the inoculated show a striking immunity in the midst of very severe epidemics.

Diagram I. D represented the percentages of plague attacks averted by inoculation. Each column represented 100 attacks which occurred among the uninoculated population; the upper shaded portion of the columns represented the number of attacks which occurred in an equal number of the inoculated population. The remaining blank portion of the column shows the percentage of attacks averted by inoculation; the saving in attacks varies from 58·3 to 100 per cent. In the Jewish community in Aden against each 100 attacks among the non-inoculated there were 31·7 in the inoculated and the saving in cases was 68 3, whereas in the tailors' camp at Broach the inoculated escaped attack altogether and the saving was 100 per cent.



Inoculation on a large scale. Percentage of plague deaths to population. The stippled portions of the columns represent the percentage of deaths in the non-inoculated. The black portions represent the percentage of deaths among the same number of inoculated.

The second class of observations, which represented observations of the working of the system on a large scale, furnished results similar to those obtained on the smaller scale. Table B gave those results. Of these Professor Simpson specially referred to the observations at Kirkee in 1897, because he had the opportunity, along with Haffkine, of checking the results on the spot. Of the community on which the experiment was made, 859 were not inoculated and 671 were inoculated. Out of the 859 not inoculated there occurred 143 cases with 98 deaths, and the proportion of deaths to cases was 68·5 per cent. Out of 671 inoculated there were 32 cases with 17 deaths and the proportion of deaths to cases was 53·1 per cent. Thus the incidence of attack on the not inoculated was 16·6 per cent. and of deaths 11·4 per cent., whereas the incidence of attack on the inoculated was 4·8 per cent. and of deaths 2·2 per cent. Or, in other words, there was among the inoculated a percentage of saving in cases of 71·4 and of deaths of 77·9, as compared with the not inoculated.] He went on to say:—

Undhera village may also be taken as another example. In this village more than half the population was inoculated, 513 being inoculated and 437 not being inoculated. Out of the 437 not inoculated there were 27 cases of plague with 26 deaths, the proportion of deaths to cases being 96·5 per cent. Out of the 513 inoculated there were eight cases with three deaths, the proportion of deaths to cases being 37·5 per cent. The incidence of attack among the not inoculated was 6·2 per cent. and of deaths 5·2 per cent., while among the inoculated the incidence of attack was 1·6 per cent. and of deaths 0·6 per cent. So that among the inoculated the percentage of saving in cases was 74·8 and in deaths 90·2, as compared with the not inoculated.

Considering the observations as a whole in the different places recorded the results show that the non-inoculated part of the population had between 4·3 and 34·9 per cent. of cases and between 0·8 and 27·9 per cent. of deaths, with a proportion of deaths to cases varying between 60·1 and 96·3 per cent., while the inoculated part of the population had been 0·4 and 4·8 per cent. of cases and between 0 and 2·5 per cent. of deaths, with a proportion of deaths to cases varying between 0 and 53·1 per cent. The number of cases among those inoculated was reduced by between 52·2 and 94 per cent., and the number of deaths between 75·7 and 100 per cent., as compared to the incidence of attacks and deaths among the non-inoculated inhabitants of the same localities.

The following diagrams refer to the observations on large

communities and they are constructed on the same principle as those relating to the smaller communities.

Diagram II. B (a copy of which we print) illustrates epidemics of different degrees of severity and the relative incidence of the disease among the not inoculated and the inoculated. The whole column represents 100 inhabitants inoculated or not inoculated, the shaded portion shows the percentage of deaths among the not inoculated, and among the inoculated. The incidence of deaths in the non-inoculated population varied between 0·8 and 27·9 per cent., whereas among the inoculated it varied between 0 and 2·5 per cent.

[*Diagram II. E* showed the saving in the number of deaths among the inoculated compared to the non-inoculated. Each column represented 100 deaths which occurred among the uninoculated population. The shaded portion of the column represented the number of deaths which occurred in an equal number of the inoculated population. The remaining blank portion of the column showed the percentage of deaths averted by inoculation. The saving in the number of deaths effected by the inoculations varied between 75·7 and 100 per cent.]

These diagrams bring out in a very clear manner the great value of the inoculation. Stated generally, the average reduction amounts to three times fewer attacks among the inoculated and should the inoculated take plague the chances of death are reduced at least twice. Accordingly, the chances of escape from death are 6 to 1 in favour of the inoculated compared to the uninoculated. In many cases they are at least 10 to 1 in favour of the inoculated—that is, out of 1,000,000 deaths among a non-inoculated population, if that population had been inoculated and exposed to the same infection, 900,000 lives would have been saved.

There are numerous other observations that might be quoted showing the value of Haffkine's prophylactic as a protective against plague. I shall content myself, however, by giving two further examples, one recorded by Dr. J. A. Turner, health officer of Bombay, and the other by Lieutenant-Colonel J. A. Cunningham, I.M.S. The first relates to the municipal employees under Dr. Turner. 7182 were inoculated and 418 were not inoculated. Out of the 7182 inoculated there were 14 attacked with plague and 13 died, being a percentage of 0·19 of attacks and 0·18 of deaths, whereas among the 418 not inoculated there were 28 attacked and 26 deaths, equal to a percentage of 6·7 attacks and 6·2 deaths. If the inoculated had suffered to the same extent as the non-inoculated they would have furnished 481 attacks with 446 deaths, instead of 14 and 13 respectively. The second refers to a small plague-stricken village in the Umballa district of the Punjab, where Lieutenant-Colonel Cunningham inoculated nearly half the population. Lieutenant-Colonel Cunningham describes the circumstances connected with the inoculations as follows:—

> The village is Chamaru, about nine miles from Umballa city, situated in Thana Ganour in the Patiala State, the population of which was 783 souls. Narain Singh, a Lambardar of the village, brought in batches to the civil hospital, Umballa, between 21st and 27th March, 1907, 312 people, comprising men, women, and children of all classes, and these were inoculated with plague prophylactic serum by Captain Ross, I.M.S., assistant plague medical officer. The Lambardar, to whom great praise is due, took this action because rats were dying of plague in the village. On the 22nd March, the day following the first batch of inoculations, cases of plague were observed amongst the people of the village, and between this date and the 14th May 64 people contracted the disease, 38 dying.
>
> We can now compare the results (which I had carefully verified on the spot by a medical officer) between the 312 inoculated people and the 471 uninoculated similarly situated in all respects, except for the difference in inoculation. Out of 312 inoculated, 13 contracted plague and four died, whilst amongst 471 uninoculated people 51 got plague and 34 died. The percentage works out for inoculated, attacks 4·13 per cent. and deaths 1 25 per cent.; whereas for uninoculated the figures are: attacks 10·8 per cent. and deaths 7 2 per cent.
>
> For comparison I had the results ascertained in another village, Rampur, population 484, situated two miles from Chamaru in the Patiala State, where no inoculation had taken place. Here there were 74 attacks and 32 deaths, the disease occurring simultaneously with that at Chamaru between 14th March and 14th May; the percentages here are: attacks about 15·2 per cent. and deaths 6 6 per cent. of the population. Of the four who died in Chamaru amongst the inoculated two of them showed signs of the disease the day following the inoculation, and in their case it is safe to assume that their fate was sealed by previous infection before the protective effect of the inoculation came into operation.
>
> It is, I think, a fair assumption that the inoculation of these 312 people saved the lives of 19 and saved 21 others from an attack of a very serious disease. If we could conceive a relative amount of immunity from death and plague throughout the Punjab, what a difference it would make in the experience of thousands of families, and in the population of the province. Even if this Umballa district, with its population of about 763,250 had been thoroughly inoculated, these figures show that about 20 000 of the 26,551 deaths from plague this season might have been averted. This and previous experience would justify the revival of an extensive inoculation campaign throughout the country.

DURATION OF IMMUNITY.

Observations in Hubli, Dharwar, and Gadag, three towns in the Southern Mahratta country where a large number of inoculations were done in 1898, tend to show that the effects lasted for several years (weekly reports of collector of Dharwar). The annual reports of the Parsee community in Bombay and the general report issued by them in 1902 seem to indicate that the effect of the inoculations lasted four or five years, though gradually it diminishes. Certain indications in a similar direction were obtained in the Punjab in observations made in 20 villages.

THE MULKOWAL ACCIDENT.

The inoculations have been going on for ten years in India, and several millions of people have undergone the operation. In these ten years there has been only one serious accident, and this was due to a departure from the technique or rules prescribed by the laboratory when opening a bottle of prophylactic in a village in the Punjab in 1902, in other words, to a faulty application of the prophylactic and not to a fault in its preparation. This accident is an important event in the history of plague operations and as the inquiry into it is of great scientific interest it is desirable briefly to record the salient facts connected with it. These facts have been gathered by a special commission of inquiry in India. Briefly, they are that the bottle was one of five filled from the same cultivation flask, and four were used without any ill effects, proving that the laboratory flask was not contaminated; further the bottle had been issued from the laboratory 26 days before being opened and when opened had no smell. This absence of smell is proof that no culture, even of a few days old, of the tetanus bacillus was present. A number of other facts confirm this conclusion. Thus the period of incubation and the duration of the disease were prolonged, which would not have been the case with an injection of a ready-made culture and toxin. It was found that the Mulkowal tetanus bacillus when experimentally introduced into a bottle of water agar prophylactic for a few days produced a very rich and extraordinarily toxic culture; 1½ cubic centimetres of this mixture of toxins and microbes would represent an infection such as never occurs in nature. The disease should therefore have been of the most fulminating character ever observed clinically; whereas, on the contrary, it was of an average character with a relatively long incubation period and duration of the disease. The syringe, moreover, with which the injections were made did not convey tetanus to those inoculated from other bottles which would have been the case if it had been infected with a rich culture of tetanus, notwithstanding a soakage for a few minutes in a carbolic solution of 1 in 20. The dregs of the bottle showed some aerobic microbes and only a poor and weak culture of tetanus such as would develop under aerobic conditions, subsequently to the emptying of the bottle. The actual contamination of the bottle was rendered possible by the local authorities having abolished the laboratory instructions of sterilisation by heat and having substituted for them momentary dipping in carbolic acid. In the opening of the bottle the cork and neck were not sterilised by passing through the flame and for withdrawing the cork soiled forceps were used which had fallen to the ground and were applied to the mouth of the bottle without sterilisation. The fact that no accident occurred while the proper technique was unaltered proves the high degree of safety with which operations on a large scale can be carried out in India.

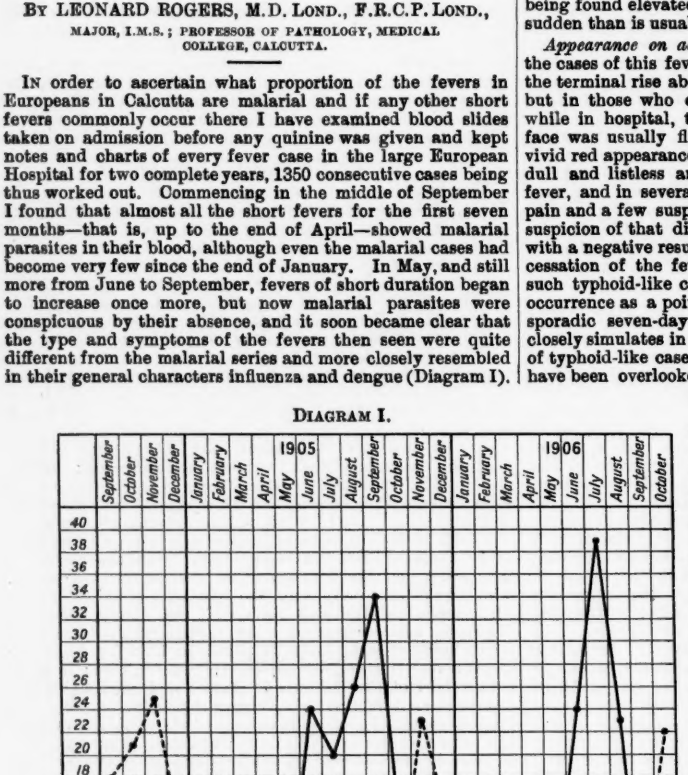
ASSOCIATION OF SCOTTISH MEDICAL DIPLOMATES.—The annual general meeting of this association was held on June 19th at 11, Chandos-street, Cavendish-square, W. The report of the council was unanimously adopted. The retiring President, Mr. C. St. Aubyn-Farrer, was made an honorary vice-president. Dr. David Walsh was elected President for the year 1907–08, that post being tenable for one year only without break. Mr. Sydney Stephenson was re-elected honorary treasurer and Dr. Arthur J. Harries was appointed honorary secretary. Mr. Skene Keith and Mr. Charles Ryall were elected to vacancies on the council. We are requested to state that Dr. Alexander Morison, Dr. C. O. Hawthorne, and Dr. T. N. Kelynack have resigned their position as members of the council of the society.

A COMMON SPORADIC SEVEN-DAY FEVER OF INDIAN PORTS SIMULATING DENGUE.[1]

BY LEONARD ROGERS, M.D. LOND., F.R.C.P. LOND.,
MAJOR, I.M.S.; PROFESSOR OF PATHOLOGY, MEDICAL COLLEGE, CALCUTTA.

IN order to ascertain what proportion of the fevers in Europeans in Calcutta are malarial and if any other short fevers commonly occur there I have examined blood slides taken on admission before any quinine was given and kept notes and charts of every fever case in the large European Hospital for two complete years, 1350 consecutive cases being thus worked out. Commencing in the middle of September I found that almost all the short fevers for the first seven months—that is, up to the end of April—showed malarial parasites in their blood, although even the malarial cases had become very few since the end of January. In May, and still more from June to September, fevers of short duration began to increase once more, but now malarial parasites were conspicuous by their absence, and it soon became clear that the type and symptoms of the fevers then seen were quite different from the malarial series and more closely resembled in their general characters influenza and dengue (Diagram I).

DIAGRAM I.



	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Seven day F.	0	2	2	1	-	-	1	1	8	24	20	26	34	13	5	-	-	-	-	1	9	24	39	23	3	4
Malaria	18	21	25	14	7	3	1	3	5	4	13	5	10	9	23	15	2	2	4	3	2	5	5	12	9	22

The seasonal influence of seven-day fever compared with that of malaria.

During the following year of 1906 a similar, but shorter, prevalence was again noted, while an examination of the hospital records for several previous years showed that this fever always appeared at about the same time in greater or smaller numbers year by year, while its seasonal incidence was quite distinct from that of true malarial cases. I published a short account of this newly separated fever in the *Indian Medical Gazette* for November, 1905,[2] and dealt with its seasonal incidence and differentiation from malaria in the same journal in March, 1906, since which I have had much further experience of the disease and studied both its distribution in India and the literature of allied affections and so am anxious to bring it up for discussion by this society.

CLINICAL DESCRIPTION OF SEVEN-DAY FEVER.

Onset.—The onset of the fever is almost invariably found to be quite sudden and frequently to commence with chilliness and not rarely with a rigor, which in a few exceptional cases may recur, but not with the regularity of a true malarial fever. I have known a hospital patient convalescent from some other disease to be suddenly attacked with seven-day fever while out for a drive, his temperature being found elevated on his return. The onset is thus more sudden than is usual in typhoid fever.

Appearance on admission.—I shall show that about half the cases of this fever seen in Calcutta were admitted during the terminal rise about the fourth or fifth day of the fever, but in those who come in an early stage or are attacked while in hospital, the following points may be noted. The face was usually flushed and the conjunctiva presented a vivid red appearance, while the general expression was often dull and listless and highly suggestive of early typhoid fever, and in several cases the addition of some abdominal pain and a few suspicious spots gave rise to such a strong suspicion of that disease that a Widal test was performed with a negative result, which was soon confirmed by the early cessation of the fever. Moreover, I have frequently seen such typhoid-like cases in consultation and I regard their occurrence as a point of great importance in separating this sporadic seven-day fever from epidemic dengue, which it closely simulates in some repects, for I can find no description of typhoid-like cases in dengue, although they could not well have been overlooked in that disease if the two fevers are one and the same.

Headache.—Severe headache, almost invariably frontal, is one of the most constant symptoms accompanying the onset of the fever, often together with pain in the back of the eyes, so that when asked to point out exactly where the pain is felt the patient places his forefinger and thumb one on each side just behind the external orbital processes of the frontal bone. The headache in malaria is less frequent and more variable in position than that of seven-day fever.

Pains in the back and limbs.—In addition to headache, pains in the back, and only slightly less frequently in the limbs as well, are almost constantly present, while occasionally they are described as occurring in the joints, but without any local swelling or tenderness. They generally come on suddenly with the initial fever and may be sufficiently severe to disturb the night's sleep, but according to several medical men with a personal experience of both seven-day fever and dengue (who expressed their opinions at a discussion on the subject at the recently instituted Medical Section of the Asiatic Society of Bengal), the pains in the sporadic fever are nothing like as severe and intractable as those of true epidemic dengue. They more closely resemble those of influenza and are more constant and severe than the aching pains of malarial fevers.

Alimentary system: tongue.—Another very characteristic feature is the appearance of the tongue, the dorsum being furred, often markedly so, while the edges are raw and red, and a "strawberry" appearance may be seen. This condition is in marked contrast to the uniform slight furring usually met with in malarial fevers, but, on the other hand, it resembles that of influenza and dengue from which the diagnosis may be equally difficult.

Sickness.—This symptom was not frequently recorded, much less so than in malaria, so its absence is a point in the differential diagnosis against the latter disease.

Bowels.—There were no constant features regarding the bowels, which were usually regular, while constipation and slight looseness were about equally frequently met with in the remainder. Pain in, or slight distension of, the abdomen was also occasionally noted.

The liver.—Very rarely was the liver slightly enlarged and no symptoms referable to derangement of this organ were met with.

The spleen.—This organ was very rarely enlarged, and then only to a slight degree, so that increase in the size of this organ is in favour of malarial as against seven-day fever.

[1] A paper read before the Royal Medical and Chirurgical Society on April 9th, 1907.

[2] Indian Medical Gazette, November, 1905.

Respiratory system.—Symptoms referable to the lungs were conspicuous by their absence, very slight bronchitis being only very rarely seen, while in no case did pneumonia or other acute inflammatory complications make their appearance. Coryza was equally rare, so much so that I failed to find a case showing this symptom from which to try to isolate the influenza bacillus. This absence of respiratory symptoms is most important in differentiating this disease from influenza, which the general distribution of the disease and its pains caused it to resemble so closely that in my preliminary account I described it provisionally as "a peculiar type of influenza-like fever." Since then I have analysed all the cases of influenza admitted to the European Hospital, Calcutta, in the epidemic year 1892 and found that throat and lung symptoms were almost invariably present, while both the seasonal incidence and temperature curve were entirely distinct from those of seven-day fever, which is therefore certainly not influenza. The absence of respiratory symptoms is, then, a very important point of differentiation of seven-day fever from influenza.

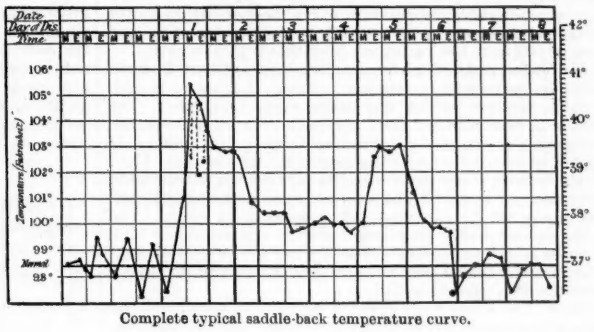
Circulatory system.—The heart does not appear to suffer in seven-day fever in the way it so commonly does after influenza, and once the pyrexia has ceased convalescence is fairly rapid. The pulse, however, presents a very important feature—namely, a most constant and characteristic slowness relatively to the temperature, just as is so often seen in typhoid fever. At the very beginning it may be fairly rapid and rise to over 100 beats per minute, but once the patient has been placed at rest in bed it rarely rises above that point. During the terminal high rise of the temperature it scarcely ever exceeds 100, being more commonly about 80 to 90 only, while after the temperature falls finally to normal it may be 60 or less. The great practical importance of this feature is that it nearly always allows of the difficult cases only admitted during the terminal rise of temperature being differentiated from true malaria, with which they have hitherto been almost invariably confused, for in the latter condition when the pyrexia rises to 103° or 104° F. the pulse is nearly invariably over 100 per minute and usually up to 110 or more.

Cutaneous system.—Rashes are occasionally seen in this disease but were only noted in a small proportion even of those patients who were admitted to hospital in the early stages of the fever. In three cases out of 26 consecutive early cases a few small rose spots were detected on the abdomen, while in three more a definite rash appeared on the arms and legs, being best seen on the forearms as a mottled or measly looking eruption. A more extensive mottled appearance may also rarely occur, and such cases may be very difficult to distinguish from measles, and have, indeed, been admitted into the infectious block as cases of that disease. These rashes are very inconstant, and in this respect differ greatly from the text-book descriptions of the secondary eruption of true epidemic dengue.

THE TEMPERATURE CURVE.

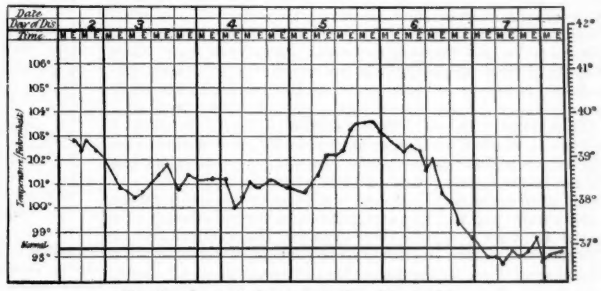
I now come to the course of the fever, which can best be illustrated by the temperature charts thrown on the screen. These vary very much in accordance with the stage of the fever at which the patient comes under observation, so that it was only through careful watching of a long series of cases that I was able to recognise that the different types seen were but variations of a single disease, and so to separate it from "abortive typhoid" and "simple continued fever" so-called on the one hand, and from malaria on the other, these being the terms under which the cases have hitherto

CHART 1.



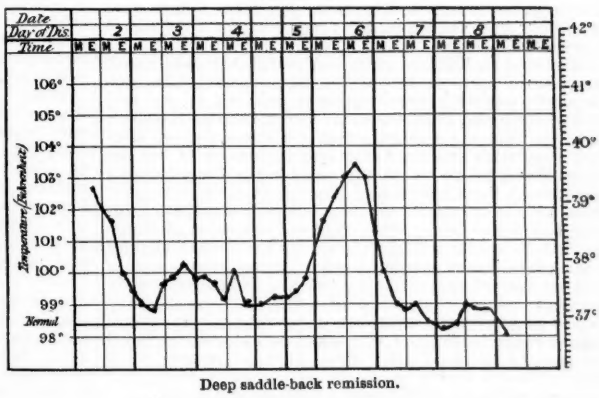
Complete typical saddle-back temperature curve.

CHART 2.



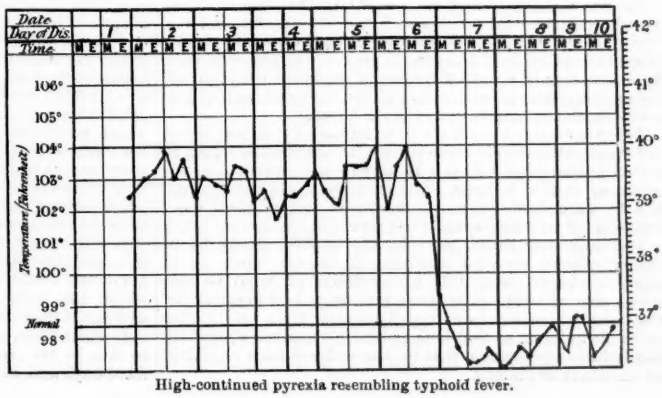
Two-hourly chart showing continued type of fever.

CHART 3.



Deep saddle-back remission.

CHART 4.



High-continued pyrexia resembling typhoid fever.

been almost invariably returned in the different parts of India where this fever occurs. Nevertheless, the fever has a most characteristic temperature curve, best described by the term "saddle-back," which it will be well to show first, and then to return to the variations from this typical course.

The typical saddle-back temperature curve.—Chart 1 shows the characteristic temperature curve from beginning to end. The temperature, which was taken every four hours, rose rapidly to over 105° and was very little reduced by repeated spongings (as shown by the dotted lines in the chart). It gradually declined during the next two days to about 100°, at which point it remained steadily for three days before the characteristic terminal rise carried it up again to 103° and was succeeded by the final fall occupying 24 hours. The pulse was markedly accelerated during the unusually high first rise of the temperature, but during the terminal one it is noteworthy that it was not found to reach over 82 beats a minute with a pyrexia of 103°.

Chart 2 is a two-hour curve showing how continued the fever was between 100° and 102° before the typical terminal rise. The pulse in this case was never recorded as above 100 and never reached even 80 during the terminal rise, in spite of the temperature attaining to over 103°, a most characteristic feature of this fever. In fact, up to the sixth day the pulse and temperature curve might have been those of typhoid fever, except that in my experience such a saddle-back remission to as low a point as 100° is rare in the early stage of typhoid fever once a higher point has been reached.

Chart 3 again shows the same saddle-back type but with a still more marked remission to reach 99°, and a final rise once more to 103°, accompanied by a pulse never exceeding 100 per minute, except immediately after admission.

One step more to a complete remission of the temperature to the normal point and we arrive at a case in which the pyrexia ceased for two complete days and yet the terminal rise to 103° occurred before the final fall to normal. Such a complete remission as this is exceptional, for in five-sixths of my cases, patients admitted within the first few days, the temperature never fell below 99° during the usual remission, while in considerably fewer still did it actually reach the normal line, a point in which this seven-day fever differs most essentially from the three day pyrexia ending by crisis of true epidemic dengue.

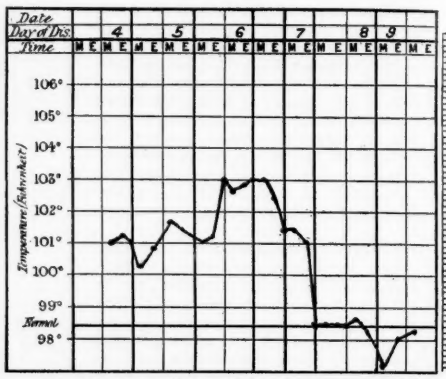
Continued typhoid-like group.—Although the saddle-back temperature curve is by far the most characteristic and frequently met with type in patients admitted in the early days of the fever, still there may be considerable variations from this form, the most important of which is the continued type simulating the early stages of typhoid fever, for the latter disease by no means very rarely begins fairly abruptly and without the classical step-like rise in cases in tropical India. Chart 4 is one of the most marked examples of this form I have met with, although I have a number of charts showing an equally continued fever but usually at a slightly lower level. These continued cases frequently give rise to needless fear of typhoid fever, but the symptoms already described will, as a rule, allow of a correct diagnosis being arrived at after some experience of the disease. In several private cases, in which I was asked to examine the blood for typhoid fever, I have been able to recognise the fever clinically and correctly to assure the friends that the temperature would fall on the sixth or seventh day.

In another patient attacked while in hospital the high initial rise was less abrupt than usual, so that the terminal one showed the highest point of the pyrexia, but with a slow pulse; a less common type which may also give rise to a suspicion of typhoid for several days. The opposite condition also occurs, quite exceptionally, in which the terminal rise is completely absent, although the temperature may not finally reach the normal until the sixth day.

Terminal cases.—I have already mentioned that just about half these patients only come to hospital during the terminal rise of temperature, and this is easy to understand when we remember that in a large number of the cases the pyrexia falls to about 100° or under on the second or third day, accompanied by a remission of the severe headache and pains in the back and limbs, so that the patient thinks he is rapidly getting over his trouble. It is only when he is rudely awakened from this happy frame of mind by the second rise of temperature that he comes into hospital for treatment, where his fever rapidly ceases while taking the inevitable quinine, so that both he and his medical attendant usually have no suspicion that he has suffered from anything but an attack of malaria.

In another patient admitted on the third day the temperature fell to almost normal on the following day, after which a well-marked terminal rise took place, during which the temperature remained persistently at about 104° for over 24 hours in spite of frequent spongings, which had only a very ephemeral effect on the pyrexia. The pulse was also never recorded as rising over 92 during this high temperature, while a very slight and short recrudescence of fever occurred just after the cessation of the secondary curve, as is rarely the case. Chart 5 is that of a man

CHART 5.



Case admitted on the fourth day showing terminal rise.

admitted on the fourth day with a low continued type of fever succeeded by the characteristic terminal rise with a slow pulse. In another unusually short case admitted at about the beginning of the terminal rise, the fever only lasting two days under quinine, but with the slow pulse of seven-day fever and not the rapid one of malaria. In this case, as in every one on which this paper is based, a blood film taken before any quinine had been administered in hospital was examined for malarial parasites with a negative result.

These last mentioned three cases will serve to illustrate the very frequent admissions during the terminal rise of pyrexia, many of them only coming to hospital on the fifth or sixth day of the disease but a few hours before the final fall. In such only the history of the patient, the absence of malarial parasites, and, above all, the slow pulse during high fever, aided by their occurring in the regular season for this disease, will allow of a correct diagnosis being arrived at and the common error of returning them as malaria avoided.

THE DURATION OF THE FEVER.

On account of the patients coming to hospital in any stage of the disease the actual duration of the fever after admission varies widely from one to eight, or rarely over eight, days. The total duration of the fever in just about three-quarters of them was either six or seven days, so that the temperature either fell to normal on, or finally remained normal during, the seventh day in this proportion, and hence the name of "seven-day fever" which I have proposed for the disease. A slightly larger number of cases end on the sixth than on the seventh day, but it appeared to me to be better to take the later day for the name of the affection so as not to lead to its termination being expected at an earlier date than actually occurs in almost half the total cases. The following table shows the number of cases which terminated on different days of the fever, the cases denoted "typical" being those admitted sufficiently early to show the characteristic saddle-back or complete terminal rises of temperature, while the "terminal" cases are those admitted near the end of the disease, and so especially liable to be returned as malaria.

It will be seen from this table that in no case did the fever last less than three days, while in only four, or 2 per cent., did it end on the third day, all these being terminal cases in which the history of the duration of the fever before admission may have been inaccurately given. Further, in only eight cases, or 4 per cent., it ended on the fourth day, so that in the remaining 94 per cent. the fever lasted five or more days and in 86 per cent. it lasted six or more days—a

Table of the Duration of the Fever.

—	0-3 days.	3 days.	4 days.	5 days.	6 days.	6 or 7 days.	7 days.	8 days.	+ 8 days.	Total.
Typical cases	0	0	3	5	39	(76)	37	8	8	100
Terminal cases	0	4	5	10	40	(69)	29	10	8	106
Total cases	0	4	8	15	79	(145)	66	18	16	206

point of the utmost importance in separating out this disease from true epidemic dengue with three or less days' fever according to the great majority of experienced writers on that disease. As I was examining the blood of every fever case in the hospital it is impossible that I could have overlooked an appreciable number of short cases of this fever, for exceedingly few such cases without malarial parasites in their blood occurred during the months the seven-day fever was prevalent.

Convalescence.—Once the temperature is normal and the patient up and on full diet convalescence is very rapid after seven-day fever, as was pointed out by Captain J. G. Murray, I.M.S., at the recent debate in Calcutta already mentioned, this officer having had a very large experience of the disease in his wards at the European Hospital. He also stated that he had never seen a case of three or less days' duration, nor the very severe pains and joint complications of true dengue, while the pains did not return during the terminal rise of seven-day fever as in dengue. He regarded the slow pulse of seven-day fever as a characteristic point of difference from the latter disease. Another important feature of the convalescence of seven-day fever is the absence of the chronic joint pains which are often so prolonged and distressing after true dengue, producing the crippling of the patient from which the name of the affection is said to be derived, but which I have never seen in the Calcutta sporadic seven-day fever.

Relapses.—I have not yet met with a case of seven-day fever which has relapsed during the same year as the primary attack, although the same person not very rarely suffers from the disease again in a subsequent year if he remains in Calcutta, usually in a milder form with a more marked and prolonged remission of the fever, as was well illustrated by the charts of two attacks experienced and recorded by my friend Captain J. W. D. Megaw, I.M.S.,[3] in a paper in which he ably advocates the view that the seven-day fever is but a sporadic form of dengue. In the latter disease, however, even repeated relapses during a single season are very common in Indian outbreaks.

The blood changes.—The blood was examined by me in every case for malarial parasites with invariably negative results, while the protozoan parasite described by Graham of Beyrouth[4] in dengue was never seen. A differential leucocyte count was also done in over 70 cases during the first year's prevalence of the fever but with disappointing results. Without going into full details here it may be said that the total leucocytes were commonly reduced in numbers, and often markedly so, but 3000 to 4000 only being not infrequently met with, while leucocytosis was never seen. The differential leucocyte count furnished very variable results, a large mononuclear increase, quite as marked as in malaria, being by no means rare, while a lymphocyte increase with a normal proportion of large mononuclears, as in typhoid fever, was also met with, so that this test is of no value in differentiating seven-day fever from those diseases with which it is most frequently confounded.

THE CULTIVATION OF A BACILLUS FROM THE BLOOD OF SEVEN-DAY FEVER CASES.

Being struck with the resemblance between the more continued types of the seven-day fever with its slow pulse to typhoid and para-typhoid fevers I made numerous attempts to cultivate a bacillus from the vein blood, some difficulties being encountered owing to the European hospital being three miles from my laboratory, so that there was often a delay of an hour or more before the blood could be diluted with a sufficient quantity of broth. Nevertheless, an organism was obtained in pure culture in six cases during the two seasons' work, which appears to present constant features differing from those of the bacilli of typhoid and paratyphoid infections. The following are its principal characteristics. In shape and size it resembles those of the coli group and, like them, is actively motile, flagella in comparatively small numbers having been demonstrated in some of them by my assistant, Dr. G. C. Chatterjee, to whom I am indebted for much help in testing the cultural characters of the organism. It is decolourised by Gram's method of staining, grows in broth with the production of a diffuse haziness, forms a thin film on gelatin at 70° F. without liquefying the medium, and an appearance resembling that produced by the coli group on the surface of an agar tube. In a stab culture of glucose agar it does not grow very readily except in the upper part of the streak and on the surface and does not produce any gas formation. On potato it forms an invisible growth like the typhoid bacillus. In litmus milk no clotting is produced and only slight acidity results after a few days. In dextrose, lævulose, glucose, and maltose broths there is neither acid nor gas formation, but with mannite slight acid formation takes place after several days. The organism thus appears to be related to the great coli group but differs from the organisms of typhoid and paratyphoid fevers. In addition to the cases in which it was isolated from the blood a number of other cases yielded negative results so that repeated examinations are necessary in order to obtain it, but this is, perhaps, not surprising in such a mild and short fever as the seven-day one is. Clumping was obtained with the organisms when mixed with the blood of patients suffering from seven-day fever up to dilutions of 1 in 20 and 1 in 40, although not sufficiently constantly to furnish a reliable diagnostic measure, the fever apparently being too short in duration to yield much agglutinins. The presence of this organism repeatedly in the blood of seven-day fever patients points to its being probably the cause of the disease, but my observations require confirmation before this relationship can be positively asserted, while it is also desirable that similar methods should be employed in true dengue, which somewhat resembles seven-day fever.

Treatment.—Quinine is useless and tends to aggravate the headache, while I know of no drug which influences the course of the fever, although salicylate of sodium is useful in modifying the pains and belladonna is worth trying if they are unusually severe.

Mortality.—No fatal case has been met with.

Race and sex incidence.—The most striking fact in the incidence of the disease is that for the first month or two of its prevalence each year practically every patient is a sailor or someone connected with shipping on the river Hooghley. Later in the season patients are admitted from other sections of the community all over Calcutta, but it especially affects newcomers rather than those who have lived for some years in the town. For this reason comparatively few cases were seen in females, and extremely few in children, almost all the women and children admitted to this hospital belonging to the classes who are born and bred in India. Among the native classes admitted to the Medical College hospital cases are also occasionally seen, but this fever is many times rarer in the indigenous population than among Europeans, especially if the proportions of the two living in Calcutta are taken into consideration—another point in which it is at total variance with epidemic dengue.

THE SEASONAL INCIDENCE OF SEVEN-DAY FEVER COMPARED WITH THAT OF MALARIA.

The monthly incidence of seven-day fever and malaria respectively during the two years that I microscoped the blood of every case is shown in Diagram I. In 1904 the seven-day fever was prevalent from June to August, disappearing again in September, which is the month during which malarial cases rapidly increased from a prevous low level. The former remained practically absent from September, 1904, to the following April. In 1905 the seven-day fever was unusually prevalent, beginning to increase as early as May and being very numerous throughout from June to September, but rapidly declining during October and November and disappearing once more from December to the following April. Owing to a late rainy season the usual autumnal increase of the malaria did not appear until November and December, when the seven-day cases had markedly decreased. In 1906 the new fever cases were less numerous than in 1905, but they began to increase in May,

[3] Ibid., 1906.

[4] Journal of the American Medical Association, 1902, p. 183.

reaching the highest point in July and declining again to very few in September, the fall as usual taking place just before the main rise in the malarial curve. If, however, a curve of the incidence of both fevers together is worked out (as shown in a paper on Malaria in Calcutta in the *Indian Medical Gazette* of March, 1906), then a single curve is obtained with two maxima, the first due to the seven-day and the second to malarial fevers. It is not, therefore, surprising that both these fevers have been so long confused together and regarded as malarial in nature. The late Lieutenant-Colonel A. Crombie, I.M.S., may have been thinking of the seven-day fever now described when he stated that in his belief 75 per cent. of the fevers in Calcutta returned as malaria did not belong to that category.

Distribution in India.—An examination of the records of all the fever cases for two or three years in the large hospitals of Bombay, Madras, and Lahore showed this seven-day fever to occur at the two first places only, but I have not found any cases in Lahore or in the United Provinces. It is thus a common fever with a definite seasonal distribution in the large seaports of India, among which Rangoon should also be included, for Captain F. N. Windsor, I.M.S., has reported to me that it is commonly seen there at about the same season that Calcutta is attacked. It is too early to say that it does not occur inland, but it seems pretty certain that it is at least comparatively rarely seen far from the coast line.

THE DIFFERENTIAL DIAGNOSIS OF SEVEN-DAY FEVER.

From malaria.—Briefly the diagnosis of seven-day fever from malaria, with which it has been so long confused, can usually be made clinically by attention to the points described in my paper on the latter disease. The chief of these are the totally different temperature curve in the cases admitted early, the more severe frontal headache, the red edge to the tongue, the rash when present, and pains all over, the absence of enlargement of the spleen and of malarial parasites in the blood, and especially in the terminal cases, by the slow pulse-rate accompanying high fever.

From influenza.—In Calcutta I find that influenza cases occur mostly from January to March and disappear in the hot weather before the seven-day fever season commences and do not appear again until late in the autumn when the other disease is practically at an end. Further, the temperature curve is usually an irregular intermittent one and never shows the typical saddle-back type of the seven-day fever, while the latter is scarcely ever complicated with the inflammatory signs in the lungs and throat which were nearly constant in the Calcutta influenza of 1892.

From dengue.—A much more difficult question is its separation from dengue, for the seven-day fever resembles the latter in its sudden onset, the severe headache and pains, the characters of the tongue, the rash, when present, and, to some extent, in its seasonal incidence and its distribution; so much so that I find from an extensive examination of the literature of fevers in India that the typical seven-day fever has been described as dengue by Dr. Edward Goodeve, I.M.S., in Calcutta in 1853 [5] and by Staff Surgeon P. W. Bassett Smith [6] in Bombay in 1897, in addition to a recent outbreak at the Mount in Madras. On the other hand, the fever now being described differs most markedly from the classical accounts of dengue epidemics, as well as from the two great Indian outbreaks of 1824 [7] and 1872,[8] so much so, indeed, as to make me think that it is quite distinct from dengue. The main points of difference are shown in the accompanying table:—

Table of the Differences between Dengue and Seven-day Fever.

	Dengue.	*Seven-day Fever.*
Prevalence:	At long intervals in epidemic form attacking large proportion of residents.	Annually in sporadic form.
Distribution:	Specially attacks coast towns but spreads far inland.	Only known near the coast so far.
Race incidence:	Europeans and natives equally attacked.	Very common in Europeans, comparatively rare in natives.
Seasonal incidence:	Mostly in hot months but may prevail in cold season (1872).	Prevails in hot and rainy seasons only.
Relapses:	Very common in same year as first attack.	Rare and not in same year as first attack.
Pains:	Very severe and breakbone in character.	Moderately severe as in influenza and not of breakbone character.
Joint symptoms:	Very common and characteristic.	Absent or only present as slight pain.
Convalescence:	Very tedious, lasting from one to three months, with persistent joint pains.	Rapid; no after joint pains.
Fever:	Lasts two or three days, falling to normal with crisis; occasional very short secondary rise; markedly remittent.	Five to eight or more days with typical saddle-back remission to 100° or 99° F. only; otherwise continued in type.
Pulse:	Rapid.	Slow, especially in terminal rise.

In a recent discussion on this subject at the medical section of the Asiatic Society in Calcutta my friend Captain Megaw suggested that the seven-day fever is but a sporadic form of dengue, but Lieutenant-Colonel G. F. A. Harris, I.M.S., Major D. M. Moir, I.M.S., and Mr. A. Caddy, who had each seen both dengue and seven-day fever, were all positive that the two diseases are quite distinct. Further, Major W. G. Pridmore [9] and Captain J. W. Cornwall, I.M.S., and Captain J. Catto, I.M.S., who had all recently seen epidemic dengue in Burma, Madras, and Singapore respectively, are also of the same opinion, which I share. As, however, I have never seen epidemic dengue I hesitate to pronounce a decided opinion on the subject.

One thing at least appears to be quite certain—namely, that the seven-day fever has existed as one of the commonest fevers of Europeans in Calcutta year by year for a long period. Yet it has passed quite unrecognised by many medical men with experience of true dengue, so if it be but a sporadic form of that disease the descriptions of dengue require to be completely rewritten. It appears to me to be more likely that it is a new fever, not previously differentiated, than that every writer on dengue has overlooked the most characteristic temperature curve of the disease which I have illustrated in the charts.

[5] Indian Annals of Medical Science, vol. i., p. 248, 1855.
[6] Indian Medical Gazette, 1897, p. 230.
[7] Transactions of the Medical and Physical Society of Calcutta, vol. i., 1825, pp. 310 and 371; vol. ii., 1826, p. 1.
[8] Indian Annals of Medical Science, No. 29, 1872, p. 137; Transactions of the Medical and Physical Society of Calcutta, vol. ii.; Indian Medical Gazette, 1872, p. 25.

EXPERIMENTS ON PROLONGED PROTEIN FEEDING,

WITH SPECIAL REFERENCE TO THE THYROID GLAND AND THE OSSEOUS SYSTEM.[1]

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A CONNEXION between meat eating and the production of gout has long been maintained and attempts to induce the disease in animals and birds by prolonged protein feeding have been made from time to time. The most recent experiments in this direction were undertaken by Chalmers Watson who fed eight fowls on meat alone for periods ranging from four to 16 months. His results were recorded in a paper read before the Royal Medical and Chirurgical Society in 1904.[2] No condition suggestive of gout was found in any of the birds, but, on the other hand, alterations in the long bones and hypertrophy of the thyroid glands were described and attributed to the excessive meat diet. These changes were so remarkable that it was thought desirable to repeat the experiments. This has been done during the past two to three years and the object of the present paper is to record the results obtained.

EXPERIMENTS.

The experiments began in October, 1904. Two cocks, two hens, and a cockerel were obtained, but shortly afterwards one of the hens was accidentally killed, and during the remaining period four birds were under observation. Except in the matter of food every care was taken to place them in healthy surroundings. They were kept in a commodious run, part of which was indoors under cover protected from rain and wind and part out of doors facing south-west and enjoying ample sunshine. The cage was kept clean and constant supplies of gravel, dust baths, and fresh water were provided. The protein diet was not commenced at once but

[9] Brit. Med. Jour., 1902, vol. ii., p. 1528.

[1] A paper read before the Royal Medical and Chirurgical Society on June 11th, 1907.
[2] Chalmers Watson: Transactions of the Royal Medical and Chirurgical Society, 1904, vol. lxxxvii.

a gradually increasing quantity of raw meat was added to a gradually decreasing quantity of grain. For the first week the food was wholly grain, for the next two weeks three parts grain to one of meat, from the third to the fifth weeks equal parts of grain and meat, in the sixth week one part of grain to three of meat, while from the latter date (Dec. 8th, 1904) until the termination of the experiments no food except meat was allowed. By this gradual change to an abnormal diet it was hoped to avoid any initial digestive troubles, the animals being afforded an opportunity to accommodate themselves to their new food. In the earlier part of the experiments the meat given was the ordinary butcher's trimmings but later this was discarded on account of its cost and half-raw horseflesh substituted.

Until the beginning of February, 1905, no alteration was observed in the birds but at this date they became listless and moping, standing about their runs without evincing any interest in their surroundings. They ceased to scratch over the gravel and two of the cocks penned with the hen lost all pugnacity towards each other and their sexual activity failed. Whereas their crowing had been frequent they now for over a month remained silent. All four birds developed diarrhœa, which soon became extreme, the droppings being watery and passed at intervals of a few minutes. Their appetites suffered no diminution and each readily ate one and a half pounds of meat a day, but as this appeared not to satisfy their hunger the amount was increased to two pounds for each bird. Simultaneously with the diarrhœa there developed an excessive thirst, the large drinking fountains having to be replenished twice or thrice a day, and the birds repeatedly buried their widely-opened beaks beneath the surface of the water, drinking greedily. No nervous symptom or joint-trouble of any sort was noticed. The acuteness of the attack lasted some two or three weeks but the droppings remained liquid till the end of the summer. By the middle of March the animals were bright and active again and their weights which had not increased during their illness began to rise. From now until their deaths they remained in the best of health except for the usual malaise associated with moulting. In November, 1905, three of them (the fourth having been recently killed) were shown at the Physiological Society and nothing in any way wrong was detected in their appearance. The hen during the two summers she was under observation laid occasional eggs. They were of normal size, the yelks were pale and the flavour excellent.

FIG. 1.

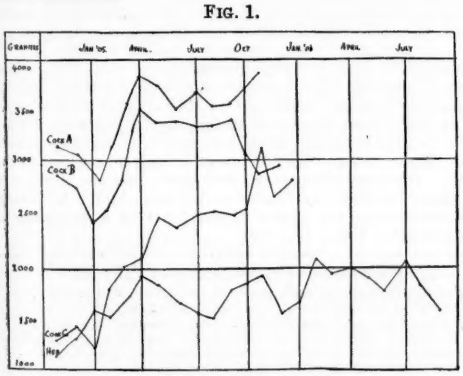

Table of weights of fowls.

A record was kept of the weights and is shown in Fig. 1. Cock A and Cock B lost weight during the first two months but thereafter rapidly increased, their progress being checked only by the acute attack described above. Cock C (a cockerel), which was at a period of rapid growth, remained constant in weight for two months and then increased until at the end of 12 months it had more than doubled its size.

POST-MORTEM EXAMINATIONS.

Each bird was killed by coal-gas and a complete post-mortem examination at once made. In each case microscopic sections were prepared of the following organs: thyroid, parathyroid, suprarenal, pituitary, spleen, liver, small intestine, kidney, pancreas, bone marrow, lymphatic gland, and testis or ovary. Specimens of these organs were fixed in 10 per cent. formalin in normal saline, prepared by the paraffin process and stained with hæmatoxylin and eosin.

Cock A (an old bird nearing the end of a period of moulting) was killed on Oct. 20th, 1905, after being on the protein diet for more than ten months. The body was very well nourished with a copious deposit of fat, especially at the root of the neck and in the abdomen. In the subcutaneous tissue covering the sternum were found numerous deposits of a chalky character, varying in size from that of a millet-seed to that of a small bean. Others occurred beneath the skin of the right thigh and one large deposit lay at the back of the neck. Their chemical examination was kindly undertaken by Dr. Foster Morley, who found them to consist of calcium phosphate with just a trace of oxalate, but no uric acid. The thyroid glands found at their normal site at the root of the neck on or near the origin of the carotid vessels were pear-shaped and somewhat translucent bodies of a pale red. The right weighed 0·20 gramme, the left 0·28 gramme. Posterior to the right and quite separate from it was a small parathyroid weighing 0·026 gramme, while in a corresponding place on the left side were two parathyroids, one anterior to the other, and together weighing 0·036 gramme. The spleen was firm and of the size of a small horse-chestnut. The bone-marrow was soft and very dark red, almost brown, in colour. The joints of the extremities were examined but no gouty deposit was present and the articular cartilages were smooth, glistening, and well lubricated by synovia. The long bones were normal in every respect (shape, density, thickness, and regularity of shaft). No gross pathological change was noted in any portion of the body.

Cock B, killed Dec. 15th, 1905, after being on the protein diet for over a year. The body was well nourished with a fairly ample deposit of fat. One or two calcareous nodules were found subcutaneously. The thyroid glands, in the usual position, were pale pinkish-white in colour and not translucent. The right weighed 0·22 gramme and the left 0·21 gramme. Close to the posterior pole of each lay a parathyroid, that on the right weighing 0·031 gramme and that on the left 0·050 gramme. The bone-marrow was dark in colour. The joints were healthy and the long bones were normal. No gross pathological change was found in any viscus.

Cock C, killed on Jan. 9th, 1906, after 13 months of meat feeding. The body was well nourished with ample deposits of fat, especially at the root of the neck. No subcutaneous calcareous bodies were present. The thyroids were pinkish-red and translucent and the weights of the right and left were 0·21 gramme and 0·18 gramme respectively. Just posterior to the left thyroid were two parathyroids weighing 0·039 gramme, while in contact with the posterior pole of the right was a bilobed parathyroid weighing 0·055 gramme. The bone-marrow was dark red—very much like blood clot. The pancreas for nearly half its length presented a curious mottled-green appearance. All the other structures, including the joints and long bones, were normal.

Hen, killed Sept. 2nd, 1906, after being on a protein diet for one year and ten months. The feathers were straggling owing to moulting. The body was very well nourished with a rich deposit of fat everywhere. A few calcareous concretions were found under the skin. The thyroid glands in the usual position appeared to be normal; they presented the customary shape, were reddish-brown, and weighed 0·08 gramme and 0·11 gramme on the right and left side respectively. Posterior to the right but not in contact with it was a small parathyroid weighing 0·018 gramme, while posterior to the left were two parathyroids, the anterior being minute and both together weighing 0·021 gramme. The bone-marrow was dark red. The joints were healthy and no change was observed in the long bones. The pituitary was pale brown. No gross pathological change was noted in any viscus.

MICROSCOPICAL EXAMINATION.

Thyroid and parathyroid glands.—The thyroids of all four birds were similar in appearance on microscopical section. The glands were divided into small compartments by delicate connective-tissue trabeculæ inclosing thyroid vesicles. These presented the usual variations in size and were lined by a single layer of flattened epithelial cells arranged round masses of colloid secretion. Intervesicular glandular tissue was almost entirely absent, as is often the case in the thyroids of birds. Occasionally the cells approached the

outline of a squat cubical epithelium and some vesicles were lined partly by the flattened variety, partly by the squat cubical. There was no folding of the lining epithelium nor had any proliferation of the secreting cells occurred (Fig. 2). The parathyroids consisted of the usual clumps of polyhedral, embryonic-looking cells, the protoplasm of some being clear and of others oxyphile and granular. No detail that was not normal to the avine thyroid and parathyroid was present.

Pituitary gland.—All four pituitary glands showed the usual cellular structure but there was a remarkable increase in the quantity of colloid present in the bodies. Drops of this secretion were scattered to excess through every section.

No change was observed in any of the other viscera.

REMARKS.

All the birds thrived on the diet, increasing considerably in weight and laying down plentiful fat. It is difficult to say to what extent, if at all, the special feeding was responsible for the attack of diarrhœa. The illness did not appear until some weeks after the dietetic treatment had commenced, and although no modification was made in the character of the food the symptoms passed off and never returned. Poultry are known to be subject to epidemic attacks of diarrhœa[3]; on the other hand, it was noted as long ago as 1660[4] that "the flux in poultry commeth with eating too much moist meat." My impression was that the diarrhœa in these experiments was not directly attributable to the character of the food.

With a view to comparison with the above results Chalmers Watson's experiments may be briefly summarised. Eight fowls were dieted for from four to 16 months. Two died from "acute nervous derangements" at the fourth and seventh months respectively, and two at the end of six months were returned to the poultry yard in apparently perfect health. Of the four remaining, one (No. 4), which at the post-mortem examination was found to be tuberculous, gained in weight, the others (Nos. 3, 5, and 6) lost weight. The tuberculous fowl suffered an attack of paralysis shortly before death. Another fowl presented attacks of "paralysis" from which it recovered without any change in the *régime*. The two remaining birds—both cocks—showed motor symptoms, one being paretic, the other paralysed. In all there was a striking absence of the clinical features of gout. The post-mortem findings were as follows. The two fowls that succumbed at the fourth and seventh month respectively revealed no gross lesions. Their thyroid and parathyroid glands were not examined microscopically. Fowl No. 4 presented tuberculous ulceration of the ileum and a liver studded with caseous tuberculous nodules. Its thyroids were normal. Of the fowls Nos. 3, 5, and 6 the only changes common to all were found in the thyroid and parathyroid glands which were recorded as enlarged in Nos. 3 and 6 and enormously enlarged in No. 5. Histological examination showed (*a*) increase in size of vesicles which were filled with colloid, (*b*) diminution in intervesicular glandular tissue, and (*c*) increase in the number of cells in the walls of the vesicles. Sections of the parathyroids were normal. Changes in the long bones were observed in Nos. 3 and 6. The bones were increased in thickness and irregular on the surface and the femora were markedly curved. The marrow had almost entirely disappeared, being replaced by a fairly dense, non-cellular tissue presenting some of the characters of an osseoid tissue. A similar appearance was seen in the outer part of the bone and apparently represented much altered Haversian spaces. Chemical examination showed a great increase in the proportion of organic matter.

Comparing the results now being recorded with those above quoted, they will be found to agree only in the absence of any changes suggestive of gout. The following points may be specially emphasised: (1) There were no nervous or motor symptoms at any time; (2) the health of all four birds was excellent at the time they were killed; (3) the thyroid and parathyroid glands were not enlarged (*vide infra*) and their sections presented the normal features of the avine glands; (4) the shafts of the long bones were not increased in thickness nor were they irregular or curved; and (5) on the other hand there was a striking increase of colloid in the pituitary glands—organs not examined by Chalmers Watson. These results show that fowls fed for a long period on an exclusive protein diet and at the same time kept under healthy conditions, including a supply of lime and other bases, present no loss of weight, no changes in the thyroid or parathyroid glands, and no changes in the osseous system. The two most important points raised by the above observer are the changes in the osseous system and the hypertrophy of the thyroid glands.

1. *The changes in the osseous system.*—These have already been detailed but there is ample ground for declining to accept them as the result of excessive meat diet. The context provided shows that the changes should be ascribed to an insufficient supply of calcium and other bases. The necessity of supplying fowls with ample lime is recognised by all poultry keepers, and a deficiency of this material produces a condition known to them as "leg-weakness." Wright in his "Book of Poultry,"[5] which I am informed is a standard work on the subject, says that leg-weakness "may arise from ..... a deficiency of bone-matter; and the symptoms ..... consist of a more or less constant squatting on the ground instead of standing or walking." Chalmers Watson says of his birds that they "showed a great tendency to sit, and would rest on the ground for much longer periods than was natural." The possibility suggested by Wright's statement that Chalmers Watson's birds were really suffering from "leg-weakness" is supported by this latter's remark that "the fowls showed a marked tendency to pick the lime off the walls and continued doing so for some time" and that chemical analysis of the bones "showed a great increase in the proportion of organic matter." The date at which the symptom of "leg-weakness" became marked is not specifically given but can be calculated from the context where it is stated that a tendency to lameness which had affected one of the birds was not manifest "after the fifth month" and that "a little later" the increased tendency to squat on the ground appeared. This fixes the onset of the symptoms at or about the sixth month. During the first six months the birds with the exception of one cock (No. 6), were kept in the country in a hen-run the floor of which was composed of natural soil, but at the end of six months they were transferred to iron cages in the physiological laboratory of the University of Edinburgh. The symptoms of "leg-weakness" did not therefore show themselves so long as the birds were kept in surroundings where a natural supply of grit was to be obtained. It may be further mentioned that in a later paper read before the Pathological Society in December, 1906, Chalmers Watson described effects on the bones of rats of prolonged protein feeding but in the subsequent discussion it was pointed out by Spriggs[6] that an exclusively protein diet implied a deficiency of calcium salts and of bases generally and that the osseous changes recorded were such as would result from a deficiency of these substances. Chossat[7] in 1842 showed that pigeons fed on grain freed from any accompanying grit were unduly liable to fractures and that post mortem the bones were soft. These changes did not occur if lime was added to the grain. The conclusion seems warranted that the changes in the bones described by Chalmers Watson should have been attributed not to the excess of meat but to a deficiency of lime and other bases.

DESCRIPTIONS OF ILLUSTRATIONS ON PAGE 155.

Fig. 2.—Thyroid of fowl after prolonged protein feeding, showing the normal structure of the avine thyroid.

Fig. 3.—Thyroid of Elenora falcon (Falco elenoræ)—a carnivorous bird—showing entire absence of vesicles and only a slight amount of colloid which is restricted to lymphatic spaces in the connective-tissue trabeculæ.

Fig. 4.—Thyroid of herring-gull (Larus argentatus)—a fish-eating bird—showing vesicles for the most part small and a sparse secretion of colloid. Intervesicular glandular tissue is present to considerable amount.

Fig. 5.—Thyroid of ostrich (Struthio camelus)—a graminivorous bird—showing vesicles for the most part large, a free secretion of colloid, and no intervesicular glandular tissue.

Fig. 6.—Thyroid of crowned crane (Balearica pavonina)—a graminivorous bird. Vesicles on the whole large, plentiful colloid, and little or no intervesicular glandular tissue.

Fig. 7.—Thyroid of tataupa tinamou (Crypturus tataupa)—a graminivorous bird. No vesicles are present; the only colloid is that in a lymphatic beneath the capsule. The resemblance of this thyroid and that of the falcon to a parathyroid gland is marked. All the figures represent the same degree of magnification.

[3] Klein: Grouse Disease, 1892.

[4] G. Markham: Cheape and Good Husbandry for the well-Ordering of all Beast and Fowles and for the general Cure of their Diseases. Ten'h edition. 1660.

[5] Wright: Book of Poultry. Cassell and Co.

[6] Spriggs: THE LANCET, Dec. 29th, 1906, p. 1779.

[7] Chossat: Comptes Rendus de l'Académie des Sciences, 1842, vol. xiv., p. 451.

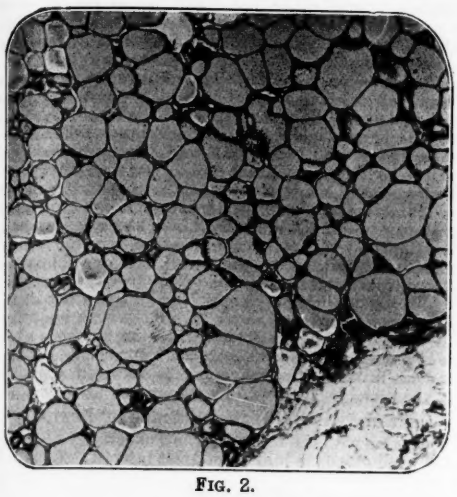

FIG. 2.

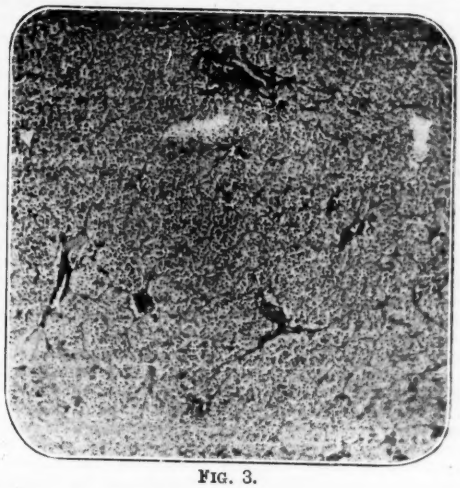

FIG. 3.

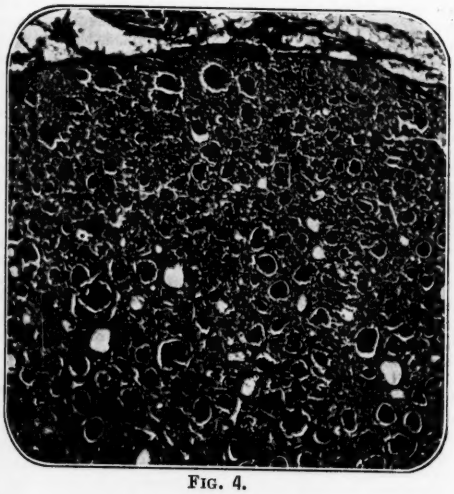

FIG. 4.

FIG. 5.

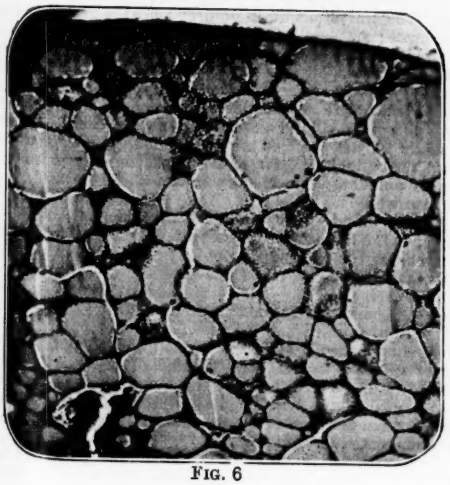

FIG. 6

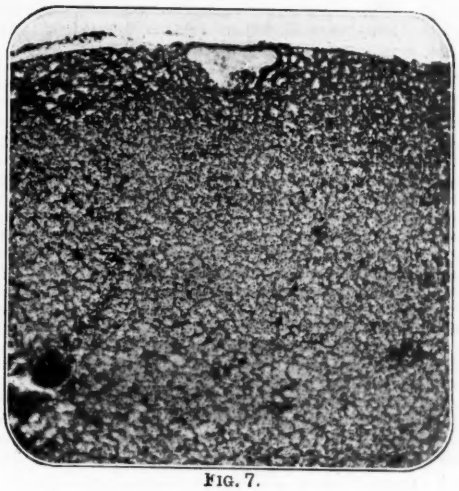

FIG. 7.

2. *Hypertrophy of the thyroid glands.*—The weights of these bodies, as given by Chalmers Watson, are as follows: No. 1, no weights recorded. No. 2, no weights recorded. No. 3, weight of one thyroid, 1·25 grammes; weight of second not recorded; body weight, 1680 grammes. No. 4, weights of thyroids not recorded (stated to have been normal); body weight, 2625 grammes. No. 5, weights of thyroids, 9·5 grammes and 3·0 grammes respectively; body weight, 2540 grammes. No. 6, weight of one gland, 1·15 grammes; weight of the other gland not recorded; body weight 1640 grammes. The average weight of a thyroid gland is given as 0·14 gramme.

It will be seen that of the six fowls that were examined post mortem three showed no change in the thyroids, one showed great hypertrophy of both lobes, and in the remaining two one lobe was enlarged but no record was made of the condition of the other. This omission to record both weights in three cases and one weight in each of two cases is to be regretted, as it detracts from the value of the conclusions obtained. (*a*) Fowls vary in weight between very wide limits and an amount of thyroid tissue normal to a large bird would represent hypertrophy in a small. Nos. 4 and 6 differing so much in weight would be expected to possess thyroids differing correspondingly in weight. In my own series one bird was more than twice the weight of another, and it would obviously be fallacious to judge of the degree of hypertrophy by comparison of the absolute weights of the organs. The only trustworthy standard for comparison is the amount of thyroid gland per kilogramme body weight, and in only one of the above examples can this figure be ascertained. (*b*) The thyroid glands in birds, as in mammals, may be of unequal size,[8] and a record of the weight of one lobe alone has no value as an index to the total amount of thyroid tissue. For example, in No. 5 one gland was more than three times the weight of the other. As regards parathyroid glands my experience has been[9] that they possess no constancy of size but vary between wide limits. An examination of the thyroid glands of two full-grown healthy fowls gave the following figures:—

No.	Body weight in grammes.	Weight of thyroids.	Total weight of thyroid.	Thyroid per kilogramme body weight.
1	1871	0·14 0·15	0·29	0·155 } average 0·164
2	1899	0·15 0·18	0·33	0·174 }

The following table gives the weights obtained from the four birds of my own series:—

—	Body weight in grammes.	Weight of thyroids.	Total weight of thyroid.	Thyroid per kilogramme body weight.
Cock A.	3890	0·20 0·28	0·48	0·123 }
Cock B.	2980	0·22 0·21	0·43	0·144 } average
Cock C.	2805	0·21 0·18	0·39	0·138 } 0·131.
Hen.	1617	0·08 0·11	0·19	0·118 }

If the weights of the thyroids were considered apart from the body weight, three out of four birds would appear to have hypertrophied thyroids. The fallacy of the conclusion appears when the percentage weights are obtained. These figures show that in none of the series did the thyroid hypertrophy.

Two additional points of great importance must be borne in mind when appraising the value of Chalmers Watson's results. In the first place, enlargement of the thyroid gland is known to occur in many animals, including birds, quite apart from any question of diet. Sloan[10] has described goitre in crows and Fischer in 1896[11] stated that domestic fowls are subject to the same condition. The possibility that fowls Nos. 3, 5, and 6 were the subject of pathological goitres has not been excluded and the ascription of the hypertrophy to excessive protein eating appears premature. This is the more probable seeing that, apart from my own experiments, many other investigations on the effect of protein feeding have been conducted but, as Chalmers Watson states,[12] in none has any change in the thyroid glands been recorded.

The second point to which due attention must be given is that each of the three fowls in which the thyroid was affected presented evidence of disease elsewhere. The heart of one was hypertrophied, its duodenum was dilated, and before death its blood presented a very striking deficiency of white blood corpuscles; in the second there were very pronounced atrophic changes in the intestinal tract and the duodenum was dilated; while the third showed profound atrophic changes in the intestinal canal, a great increase of pigment in the liver, and before death a very pronounced leucopenia. If, further, it be accepted that these birds had so suffered from a want of lime and other bases as to develop in each instances "leg-weakness," and in two out of the three instances definite changes in the bones, it is obvious that it is well-nigh impossible to trace the influence of an excess of protein among so many morbid conditions, and any conclusions in this direction must be received with the greatest caution.

ON THE THYROID GLAND IN BIRDS OF PREY.

In connexion with the foregoing the comparative histology of the thyroid glands in birds is of great interest. There is a large class of birds—the raptores or birds of prey—feeding exclusively on meat and the condition of their thyroids should provide evidence bearing on the relation between the glands and meat eating. I cannot find any published records of the structure of the thyroids of these birds but I have recently, by the courtesy of Mr. F. E. Beddard, the prosector to the Zoological Society of London, had opportunities of examining post mortem representative types of the eagles, vultures, owls, falcons, and kites, as well as many non-raptorial birds. Altogether more than 30 different species were examined but no obvious difference in relative sizes between the thyroids of carnivorous, omnivorous, and graminivorous birds was noticed. Accepting for the moment the conclusions of Chalmers Watson, it would be expected that the thyroid glands of birds of prey would show to a marked degree the features he has ascribed to excessive protein feeding. It should be found (1) that the thyroids of these birds consist of large vesicles filled with colloid and that the intervesicular glandular tissue is diminished; and (2) that the thyroids of non-raptorial birds when contrasted with these show vesicles of comparatively small size, a not over-abundant secretion of colloid, and an average amount of intervesicular glandular tissue. In the specimens I have examined I find that this relation does not exist and that not only were the structural characters which we are assuming to be associated with meat-feeding not specially marked in carnivorous birds but in some instances the exact contrary was pronounced. Further, these characters were strikingly marked in many species which subsist chiefly or exclusively on vegetable food. Microphotographs of a series of avine thyroids will illustrate these points. The specimens are arranged in three groups: first, a group representing the carnivorous birds of prey; next a group of fish-eating birds; and lastly, a group of graminivorous birds.

1. *Carnivorous birds of prey.*—These are represented by the short-toed eagle (Circaetus gallicus), the barn owl (Stryx flammea), and the elenora falcon (Falco elenoræ). In the thyroid of the eagle the vesicles are of good size and contain plenty of colloid; intervesicular tissue is absent. In the owl many of the vesicles are quite small and not a few contain no colloid; intervesicular tissue is present to considerable amount. The elenora falcon possesses a striking thyroid in which no vesicles at all are present, the polyhedral cells still retaining their primitive arrangement into solid clumps; colloid secretion is present only to a very slight extent and is found occupying chiefly the lymphatic spaces in the connective tissue trabeculæ (Fig. 3).

2. *Fish-eating birds.*—The examples of these are the guillemot (Lomvia troile) and the herring gull (Larus argentatus). In the guillemot the vesicles are not small and the sections show a lavish secretion of colloid and a minimum of intervesicular tissue. The thyroid of the herring gull contains no large vesicles anywhere and the secretion of colloid is sparse. It will be noticed that the vesicles are separated from each other by an unusually large amount of intervesicular tissue. (Fig. 4.)

3. *Graminivorous birds.*—As types of this group are the

[8] Forsyth: Journal of Anatomy and Physiology (forthcoming number).
[9] Ibid.
[10] Sloan: THE LANCET, May 28th, 1887, p. 1082.
[11] Fischer: THE LANCET, Jan. 4th, 1896, p. 75.
[12] Chalmers Watson: THE LANCET, Feb. 11th, 1905, p. 347.

ostrich (Struthio camelus), the crowned crane (Balearica pavonina), the white-backed piping crow (Gymnorrhina leuconota), and the tinamou (Crypturus Tataupa). In the ostrich the vesicles vary much in size but throughout the greater part of the section they are large. There is a free secretion of colloid and intervesicular glandular tissue is practically absent. (Fig. 5.) In the crane the vesicles of the thyroid are large, the secretion of colloid is copious, and intervesicular glandular tissue is almost entirely absent. (Fig. 6.) The piping crow shows vesicles for the most part small, though here and there a large follicle appears; the amount of colloid is moderate and intervesicular tissue is present though not to a very great amount. Lastly, in the tinamou no vesicles are present, the cells of the entire gland retain their primitive arrangement, and only at rare intervals is colloid found. (Fig. 7.)

These few specimens show all varieties of structure from the thyroid with large vesicles, much colloid and little intervesicular glandular tissue, to the thyroid in which vesicles are completely absent, the whole gland consisting of tissue identical with that which constitutes intervesicular glandular tissue. Both the extreme types are represented in the carnivorous and in graminivorous birds alike and it must be concluded that the structure of the normal avine thyroid is not modified in the way suggested by any diet habits of the birds.

CONCLUSIONS.

1. Fowls kept for long periods on a protein diet but otherwise under healthy conditions show no hypertrophy or microscopic changes in the thyroid glands.
2. Their bony tissues are not affected provided the deficiency of calcium and other bases in the meat diet is made up by a supply of lime.
3. In none of the birds was any change indicative of gout observed.
4. Each of the four fowls maintained under the above conditions showed an unusual amount of colloid in their pituitary glands.
5. The thyroid glands of carnivorous birds of prey are not obviously larger, proportionately, than those of other classes of birds, nor are there any peculiarities of microscopical structure in the glands of carnivorous and graminivorous birds referable to differences in their natural foods.

(The expenses of this research were defrayed by a grant from the Royal Society to Dr. M. S. Pembrey, to whom the author is indebted.)

Harley-street, W.

MALE TRIPLETS WITH ECLAMPSIA IN A PATIENT AGED 16 YEARS.

BY ROBERT OLLERENSHAW, M.B., CH.B. VICT.

THE following case shows such a number of noteworthy points—viz., the condition of male triplets, the complication of eclampsia, and the youth of the mother and father (the age of the latter being 17 years)—that it was thought to be worthy of record.

The patient, aged 16 years, was under the care of Dr. H. P. Potter, to whom I am indebted for his kind permission to publish the case. She was admitted to the Kensington Infirmary on June 30th and was, according to her own statement, eight months advanced in pregnancy. The abdomen was slightly pendulous and rather irregularly prominent at the point corresponding to the uterine fundus. By abdominal palpation a fœtal head could be felt at the fundus and per vaginam the os uteri was found to be three-quarters of an inch in diameter; the finger-tips could define a fœtal foot through the membranes. The patient was very comfortable, the temperature being 98° F., and the pulse 90 per minute and of good quality. The urine contained 0·3 per cent. of albumin and the feet and legs were œdematous. In spite of the very considerable albuminuria the condition of the patient was such that it was decided not to bring on labour at that time and a diet of milk only was ordered. On the following day (July 1st), at 6.15 P.M., the patient suddenly became cyanosed, convulsive twitching of both arms appeared, and consciousness was lost. The cyanosis increased to an alarming extent and the pulse could not be felt at the wrist. An injection of ether (ten minims) was made into the subcutaneous tissue of the neck. It was decided that labour should be brought on at once. The patient fortunately improved, becoming semi-conscious and screaming at the slightest touch. At 7 P.M. a second convulsive attack came on and at this time the administration of chloroform was commenced, the patient becoming completely anæsthetised in four and a half minutes. The os uteri was now found to be two inches in diameter; the membranes were ruptured and traction was made on the foot which had been previously felt. Both legs were now brought down and a small male child, who appeared to be of about eight months development, was delivered. It was with difficulty made to breathe, ten minutes' artificial respiration being required. The second fœtus immediately presented by the right knee and was delivered by bringing down the legs; this child was even smaller than the first and was very cyanosed, five minutes' artificial respiration alone being sufficient to cause spontaneous breathing. The third child was larger than either of the two previous; it presented by the brow and forceps were applied for its delivery. The patient improved considerably under the anæsthetic, the pulse at the end of the labour being much better than at the commencement; a hypodermic injection of strychnine was given during the anæsthesia. The third fœtus was contained in separate membranes and was the result of fertilisation of one ovum; the first and second fœtuses were uni-ovular, having a common chorion, the individual amniotic sacs having been broken through probably by fœtal movement. The two placentæ were united by their edges so as to form one large placenta, which was expelled quite intact with the membranes five minutes after the birth of the third child. The uterus contracted well after a hypodermic injection of ergotin (grain 1). The children were all males and their respective weights were as follows: the first, 2 lb. 14 oz.; the second, 2 lb. 6 oz.; and the third, 3 lb. 2 oz. In connexion with these weights it is interesting to note that the third, and heaviest, child was nourished from a separate placenta, and of the first two children, who shared one placenta between them, the cord of the smaller child was attached at the extreme edge of the placenta.

Porak[1] states that the weights of twins are rarely alike and that the point of attachment of the placenta appears to have much influence upon the nutrition of the fœtus. In the case above reported, however, the placental attachment was entirely at the uterine fundus; the chief factor controlling the fœtal circulation and consequently fœtal development seems to have been the points at which the cords were inserted into the placenta.

The mother's state was critical for the 12 hours following delivery, the pulse-rate varying from 136 to 150 per minute and the quality leaving much to be desired. At 10.45 P.M. (three hours after delivery) the patient became very restless and threw herself from side to side, flinging her arms about, and would have thrown herself to the floor had she not been restrained; she was in a dazed condition and screamed when held. This state of affairs lasted for four or five minutes, at the end of which time she became quiet and somewhat exhausted. Hot-water bottles were applied and the foot of the bed was raised two feet from the floor. The condition improved and a fairly good night was passed, with no return of convulsions. The albuminuria, which before delivery was three grammes per litre, fell gradually, and on the following day (July 2nd) was 1·5 grammes per litre; on July 3rd it was one gramme per litre and crystals of uric acid were deposited in the urine. On this occasion only was uric acid found. The percentage of albumin decreased quite steadily. On June 30th there were three grammes per litre; on July 1st, two grammes; on the 2nd, 1·5 grammes; on the 3rd, one gramme; on the 4th, 0·75 gramme; and on the 5th, 0·5 gramme. The excretion of urea during the period covered by the above figures was always subnormal but not to any great extent, ranging as it did from 1·3 to 1·6 per cent. On July 2nd there was evidence of bronchitis, probably due to the prolonged chloroform administration; pain in the chest was also complained of. A jacket poultice was applied every four hours and relief, accompanied by disappearance of the bronchitic signs, followed in 24 hours.

With regard to the fact that all the children were of the male sex Dr. H. F. Lewis[2] states that uni-ovular triplets are always of the same sex. In this case, however, the first two children only were uni-ovular, the third being developed

[1] Revue de Science Médicale, October, 1889.

[2] Teratology Section of Hektoen and Riesman's Text-book of Pathology.

from a second ovum. Chaliex[3] reports a case which appears to be very similar to the one reported above. In his case there were three male children; the first had a separate placenta, the other two had a common placenta with velamentous attachment of the cords. Westervelt[4] notes a case of uni-ovular triplets which were all females.

With reference to the influence of heredity on the tendency to produce plural births it should be mentioned that twins had occurred twice in the girl's family within recent years; two aunts, who were sisters, had each given birth to twins. Details regarding previous generations could not be obtained. Mirabeau,[5] in an analysis of 75 cases of triplets, states that they occur usually in multiparæ who have had previous abortions and who belong to families where multiple births have been observed. He also found that the mothers of triplets were generally between the ages of 30 and 34 years. Wakley[6] has clearly shown the influence of heredity on the tendency to produce plural births. The presence of triplets was not suspected until after the birth of the second child, the fœtal heart-sounds being very indistinct.

The Infirmary, Kensington, W.

ON THE EFFECT OF TUBERCULIN ON THE GENERAL TUBERCULO-OPSONIC INDEX IN TUBERCULOUS PATIENTS.

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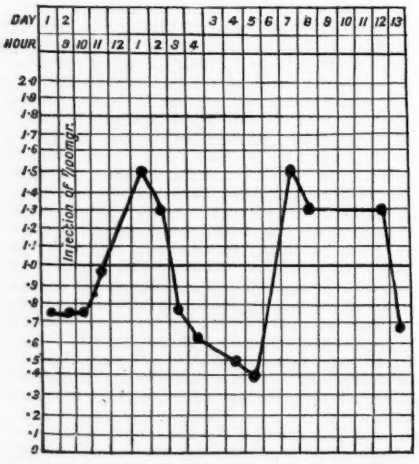
AND

HALLIDAY G. SUTHERLAND, M.B., CH.B. EDIN.,

LATE PATHOLOGIST TO THE HOSPITAL.

IT has been frequently stated that the injection of a therapeutic dose of tuberculin is invariably followed by a fall in the opsonic index lasting from three days to three weeks. This period of low opsonic index is generally known as the "negative phase" and its duration varies with the amount injected. This negative phase is followed by a period of high opsonic index, which is known as the "positive phase" and lasts for a few days, after which the index returns to about its original level. It is generally believed that by reducing the dose to the minimum that will produce any effect the negative phase may be reduced and the positive phase correspondingly increased. The doses which have been most frequently used to produce these results range from $\frac{1}{10000}$ to $\frac{1}{100}$ milligramme or even more.

CHART 1.



Showing effect of $\frac{1}{100}$th milligramme of tuberculin (T.R.).

[3] Journal de Médecine de Bordeaux, Oct. 6th, 1889.
[4] Atlanta Medical Journal, August, 1889.
[5] Correspondenzblatt für Schweizer Aertze, Basel, Dec. 15th, 1894.
[6] THE LANCET, Nov. 23rd, 1895, p. 1289.

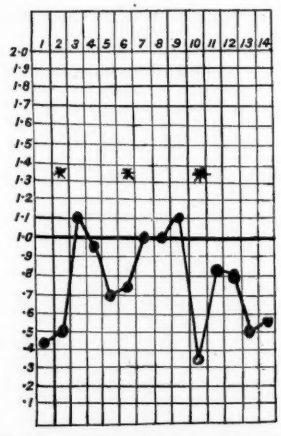
With a view to gaining more precise knowledge of the effect of a therapeutic injection we injected a phthisical patient with $\frac{1}{100}$ milligramme of Koch's new tuberculin (T.R.) and estimated the opsonic index hourly for several hours with the following result. (See Chart 1.)

1907.	Index.	1907.	Index.
Feb. 16th	0·75	Feb. 19th	0·5
,, 17th, 9 A.M. (injected $\frac{1}{100}$ mgr.)	0·75	,, 20th	0·4
,, 17th, 10 A.M.	0·75	,, 22nd	1·5
,, ,, 11 ,, ...	0·97	,, 23rd	1·38
,, ,, 1 P.M.	1·5	,, 27th	1·39
,, ,, 2 ,, ...	1·3	,, 28th	0·76
,, ,, 3 ,, ...	0·78	,, 29th	0·8

It will be observed that a rapid rise of the opsonic index occurred within two hours of the injection; it rose to a maximum in four hours, fell to its original level in six hours, and was succeeded by the usual negative and positive phases. This initial rise may be called the pre-negative phase and has hitherto been overlooked owing to the fact that indices are rarely taken more than once a day. This pre-negative phase has since been independently observed and recorded by Dr. Clive Rivière.[1]

In order to explain these facts it is necessary to assume that when tuberculin is injected into the body the opsonins present in the blood are absorbed by the bacillary débris. Fresh opsonins are then produced and as rapidly absorbed and it is thus that the negative phase is produced. But in accordance with the law of regeneration more opsonins are produced than suffice to replace those absorbed and sooner or later a point is reached at which the tuberculin is saturated. More and more opsonins are produced until the index begins to rise and the positive phase occurs. This theory will explain the negative and positive phases but not the initial rise. To explain this phase we must assume that at the moment of injection a minute fraction of the dose found its way immediately into the circulation, probably owing to rupture of some capillaries. This minute dose absorbed sufficient opsonin to set in motion the mechanism of immunity but not enough to cause more than an exceedingly minute and transitory fall in the index. The index accordingly rose rapidly. The great bulk, however, of the injection remained at the site of inoculation until by dilatation of the capillaries and transudation of lymph it too was swept into the general circulation. This occurring some hours later the excess of opsonins produced were again absorbed and the negative phase set in.

CHART 2.



Showing effect of $\frac{1}{1000000}$th milligramme of tuberculin (T.R.), the asterisk marking the date of dose.

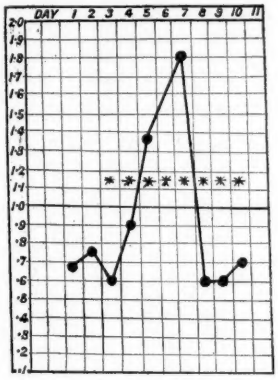
If this explanation be correct, then it follows that if a sufficiently small dose be given the negative phase will be absent or so slight and transitory as to be negligible and the injection will be followed by an immediate rise. We have tested the truth of this explanation in five patients on 14 different occasions by injecting a dose of one-millionth of a cubic centimetre of tuberculin in a bulk of

[1] Brit. Med. Jour., April 13th, 1907.

1·7 minims. (See Chart 2.) On every occasion the injection was followed by an immediate positive phase lasting from two to four days, after which the index resumed nearly its former level and the negative phase was absent. In one case, that of a child aged ten years, the positive phase continued to the sixth day.

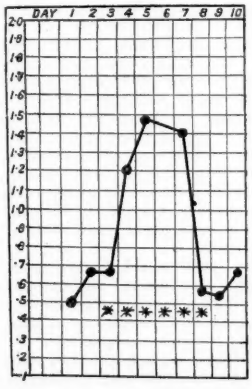
The next question which arose was whether by repeated injections one positive phase could be superimposed upon another, and if so how far could the process be carried.

CHART 3.



Showing effect of eight successive daily injections on dates indicated by asterisks of $\frac{1}{100000}$th milligramme of tuberculin (T.R.).

CHART 4.



Showing effect of six successive daily injections on dates indicated by asterisks of $\frac{1}{100000}$th milligramme of tuberculin (T.R.)

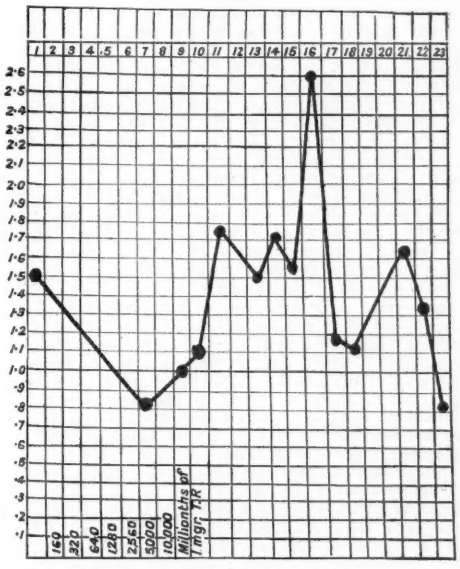
With this object a dose of one-millionth of a cubic centimetre of tuberculin was injected into two patients on six successive days with the following results. (See Charts 3 and 4.)

	Case A.		Case B.	
	Dose.	Index.	Dose.	Index.
1st day	0	0·66	0	0·75
2nd ,,	1	0·65	1	0·5
3rd ,,	1	1·2	1	0·9
4th ,,	1	1·49	1	1·37
5th ,,	1	—	1	—
6th ,,	1	1·4	1	1·8
7th ,,	1	0·59	1	0·6
8th ,,	0	0·56	1	0·6
9th ,,	0	0·68	1	0·7

It will be seen that the first three doses were followed by successive rises in Case A and the first four in Case B. In both cases the fifth injection was followed by a rapid fall to below the original level. Here the rise was higher and more prolonged than any previously produced in the same patients by a single injection and it seems reasonable to assume that this was due to a superimposition of positive phases. It is, however, obvious that this piling up of positive phases is only possible within very narrow limits. The mechanism of immunisation is one of delicate adjustment and is easily deranged. Apparently a very slight excess of tuberculin suffices to turn the scale and convert an over-production of opsonins into a deficit.

We have repeatedly tried the effect of injecting tuberculin according to the method suggested by Weber's law. This method has for its foundation the fact that in some classes of phenomena in order to produce effects

CHART 5.



Effect of a series of rapidly increasing doses.

increasing in arithmetical progression it is necessary to use stimuli increasing in geometrical progression. This method appeared to be successful in certain cases but the results are inconclusive. As an instance of the result produced by these means the following observations may be taken. (See Chart 5.)

	Index.	Dose (millionths of 1 mgr. T.R.).		Index.	Dose (millionths of 1 mgr. T.R.).
1st day	1·5	0	12th day	—	0
2nd ,,	—	160	13th ,,	1·5	0
3rd ,,	—	320	14th ,,	1·72	0
4th ,,	—	640	15th ,,	1·55	0
5th ,,	—	1,280	16th ,,	2·6	0
6th ,,	—	2,560	17th ,,	1·18	0
7th ,,	0·82	5,000	18th ,,	1·12	0
8th ,,	—	10,000	19th ,,	—	0
9th ,,	1·0	0	20th ,,	1·62	0
10th ,,	1·1	0	21st ,,	1·22	0
11th ,,	1·75	0	22nd ,,	0·86	0

From this table it would appear that it is possible by rapidly increasing doses to raise the opsonic index for a considerable period. We are not, however, at present justified in stating this as a fact universally true.

We have had under observation 32 tuberculous patients during the last six months. We have estimated the opsonic index on 492 separate occasions. In the present communication we do not pretend to define the value of tuberculin in treatment, or of the opsonic index as a guide to that treatment. It has first to be discovered how the opsonic index can be artificially modified, and only later does the problem arise as to what the effect of that modification is on the patient's health. We here have only ventured to record a few of our observations in the hope that they may be of some slight assistance to other workers in the same field.

MULTIPLE HEREDITARY DEVELOPMENTAL ANGIOMATA (TELANGIECTASES) OF THE SKIN AND MUCOUS MEMBRANES ASSOCIATED WITH RECURRING HÆMORRHAGES.

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Mrs. Sarah S., of Jewish origin, is a pale, somewhat fat woman of medium height, aged 60 years. She has a number of bright red angiomata distributed over the face, ears, lips, tongue, mucous membrane of the mouth, and the conjunctival surfaces of the four eyelids. All these angiomata are small; many, including those on the tongue and inside of the mouth, are hardly as large as an ordinary brass pin's head (punctiform angiomata); the largest ones are those on the face, the biggest of which, that on the right cheek, measures five by seven millimetres in diameter. They are all of them simple capillary angiomata (telangiectases) and hardly, if at all, raised above the general surface, with the exception of some of the larger ones (on the face), which project slightly and approach either the "spider nævus" (nævus araneus) class or a kind of small superficial cavernous nævus. On the face there are likewise a few of the common hair-like telangiectases. On the mucous membrane inside both nostrils there are some telangiectases to be seen, but on the posterior wall of the pharynx and by laryngoscopic examination of the glottis I could see nothing abnormal excepting some telangiectases on the anterior surface of the epiglottis. On the fingers, and notably under the finger-nails, there are several minute (pinpoint) red angiomata, which I had not observed until Professor W. Osler, when he recently saw the patient, kindly drew my attention to them. I have searched most of the rest of the body for angiomata, but have failed to find any excepting those already mentioned. She has varicose veins and slight œdema of the legs.

Both the patient's appearance and the examination of her blood (April 11th, 1907) show that she is anæmic; the red cells number 2,833,000 and the white cells 11,350 in the cubic millimetre of blood; the hæmoglobin-value (by Haldane's method) is 45 per cent. Dr. A. E. Boycott has very kindly examined blood films (of May 22nd, 1907) and reports that the red cells are pale and many of them undersized, but are not otherwise abnormal. He finds that there is no evidence whatever of myeloid reaction. His differential count of 500 white cells gives the following result: neutrophiles (polymorphonuclears), 42·0 per cent.; lymphocytes, 45·2 per cent.; intermediates, 7·2 per cent.; large hyalines, 2·4 per cent.; eosinophiles, 2·4 per cent.; and mast cells, 0·8 per cent.

I thought the coagulation time of the patient's blood was slightly increased as compared to that for an ordinary healthy person, but on using Sir A. E. Wright's coagulation tubes ("coagulometer") I found (May 26th, 1907) that the coagulation time was only about five and a half minutes, so that the coagulability is within the limits for normal individuals.

On auscultation of the heart a systolic murmur of uncertain nature can be heard. With this possible exception the thoracic and abdominal viscera appear healthy. The urine is free from sugar and albumin and normal in quantity. The brachial blood pressure by the Riva-Rocci apparatus (using the broad band) is about 135 millimetres of mercury. Dr. C. Markus by ophthalmoscopic examination of the right eye found a small central patch of chorio-retinitis.

The patient has been married twice, and by her two marriages has had nine children, eight of whom are living. I shall return later to the condition of these children. The menopause occurred at the early age of 38 years. At about 48 years of age she suffered from sore places of some kind on the left leg.

The biggest of the angiomata (that on her right cheek) was first observed when she was about 42 years of age. Previously to that none had been noticed; the others, she thinks, have developed at various times since then. The nose-bleeding commenced a few years before the appearance of the spots on her face. During the last six years or so she has suffered from recurrent attacks of epistaxis, an attack occurring on the average about every two or three weeks (that is, not including the occasions on which just a little blood can be seen on the handkerchief). During the last two years, and especially recently, the bleeding has been worse than it was before. There seems never to have been a tendency to any other abnormal hæmorrhages.

The patient's mother, who died at the age of 56 years, was certainly subject to attacks of epistaxis and had one or two "spots" on her face similar to those on the patient's. Three sons and one daughter of the patient suffer likewise from attacks of epistaxis and in two of the sons I have ascertained the presence of multiple angiomata of the skin and mucous membranes. In these members of her family, as in the patient herself, there is no history of any abnormal hæmorrhages except from the nose.

Of Mrs. S. S.'s nine children one only, Joseph L., springs from her first marriage. He is now about 42 years of age and is said to be healthy and not to suffer from epistaxis or angiomata. I have not seen him. He is married and has eight children, of whom the eldest, a girl, aged 19 years, has had epistaxis.

Lewis S., her second child (the first by her second marriage), is now about 37 years of age and looks a well-built man, not especially anæmic. He says that he has enjoyed fairly good health with the exception of occasional attacks of nose-bleeding, which first commenced when he was about eight years old. On examining him I found that there were two small "spider nævi" on his left cheek and a few scattered red punctiform angiomata on his neck and the mucous membrane of his gums, lips, and tongue. I could also make out a telangiectatic condition of the mucous membrane of the right side of the nose—that is, the side from which he says the bleeding always or generally occurs. He is married and has one child, a girl, aged 11 years, who has had epistaxis.

Albert S., the third child, is now aged 35 years. He is a strong-looking, not anæmic, man who has served as a soldier in India and has enjoyed good health with the exception of slight malaria contracted in India and the occasional attacks of nose-bleeding to which he has been subject since about the age of ten years. On examining him I found three small angiomata of the "spider nævus" class on his left cheek and several small angiomata situated on the conjunctival surface of the eyelids and the mucous membrane of the gums and lips, varying in size, but not exceeding about three millimetres in diameter. Some of the larger (doubtless older) of these angiomata are more bluish than the smaller. I likewise noted some ordinary hair-like telangiectases of the skin of both cheeks. Rhinoscopic examination showed a decidedly telangiectatic condition of the mucous membrane lining both nostrils. He is married and has one child, a boy four years old, who has not yet suffered from epistaxis.

Harriet R., the fourth child, is now aged about 33 years, and is said to enjoy good health and not to have any of the "spots" on her skin or to suffer from nose-bleeding. She is married and has one child, a girl aged nine years, who has not yet shown any tendency to epistaxis.

Jacob S., the fifth child, now about 31 years of age, is likewise said not to be subject to nose-bleeding or to have any of the "spots." I have not seen him.

Annie S., the sixth child, aged 28 years, suffered from disease (probably tuberculous) of the left knee-joint during childhood but otherwise has enjoyed fair health, though during the last three years or so she has had occasional slight attacks of epistaxis. She herself has not noticed any "spots" on her skin and on examining her face and hands and the mucous membranes of her mouth and nose I could find no angiomata.

Rachel, the seventh child, aged about 26 years, is said not to suffer from nose-bleeding or to have any of the "spots." I have not seen her.

Marcus, the eighth child, is said to have died at the age of three years from brain-trouble following a fall.

Manning S., the ninth child, aged 23 years, has been subject to occasional nose-bleeding since he was 18 years old. Otherwise he has had good health and now looks healthy. When I examined him recently I could find no telangiectases or angiomata on the skin of the face and hands or on the mucous membrane of the mouth and nose, but on the front of the chest I noted a few minute red nævi, such as very many or most persons have one or two of on various parts of their body.

Mrs. S. S. was treated for a time with arsenic and afterwards with an iron preparation which she thinks has done her good. She is frightened, she says, of having the

hæmorrhages from her nose altogether stopped, but although her blood coagulability is not abnormally low I am trying treatment with calcium lactate, having heard from Professor Osler of a good result apparently obtained by this method in one case. Calcium lactate (in daily doses of 15 grains) has now (July 13th) been taken for some weeks, but as yet apparently without any benefit. The patient has likewise been given a very dilute adrenalin solution to apply locally with a camel's hair brush whenever the epistaxis commences. This also has in the patient's hands apparently failed to arrest the hæmorrhage.

Remarks on the literature of the subject.—The first account of this malady in which several family groups of sufferers are referred to is that published in 1901 by Professor Osler entitled "A Family Form of Recurring Epistaxis associated with Multiple Telangiectases of the Skin and Mucous Membranes."[1] In it he has included three cases of his own. Recently Dr. Brown Kelly has reviewed the whole subject in his paper on Multiple Telangiectases of the Skin and Mucous Membranes of the Nose and Mouth,[2] which is accompanied by excellent coloured illustrations. I have arranged the following data from the published accounts under the various cases or families.

Family 1.—B. G. Babington[3] in 1865 published notes of a family showing a most remarkable tendency to epistaxis, but he makes no mention of the presence of angiomata or telangiectases of the skin or mucous membranes in any members of this family. There is therefore no certain evidence that his cases belong to the class under consideration.

Family 2.—J. Wickham Legg in 1876 read a paper before the Royal Medical and Chirurgical Society of London on a Case of Hæmophilia complicated with Multiple Nævi.[4] The patient, a musician, aged 65 years, had been subject to epistaxis from boyhood and had also shown a tendency to bleed from traumatic causes. He had numerous small nævi over the face, forehead, and various parts of the trunk which had been first noticed when he was about 41 years of age. Several members of his family suffered from epistaxis.

Family 3.—O. Chiari[5] in 1887 described the cases of two sisters, many of whose relations suffered from recurrent and severe epistaxis. He at first thought the spots on the mucous membrane in these two cases were telangiectases, but after observing two other cases he came to the conclusion that in all four cases he had to deal with blood extravasations undergoing a slow change, such as might be met with in hæmophilic patients. Brown Kelly shows reason for doubting the presence of hæmophilia in Chiari's, as also in Wickham Legg's cases.

Family 4.—Rendu[6] at the Société Medicale des Hôpitaux de Paris in 1896 brought forward the case of a man, aged 52 years, suffering from repeated epistaxis. He had small superficial angiomata of the skin of the face, neck, and thorax, and of the mucous membrane of the mouth. Angiomata were not actually seen in the nasal passages, but it was presumed that some were present there also and accounted for the frequent attacks of epistaxis. There was a history of repeated epistaxis in the patient's mother and in one brother. The latter, however, had suffered from albuminuria. The patient's father had died from "dysentery" and had been subject to melæna.

Family 5.—The first two cases described by Osler[7] were those of brothers, aged 57 and 55 years respectively. There was a history of repeated epistaxis in their father, two sisters, the child of one of the patients, and a grandniece. The face of Osler's elder patient "presented a very unusual appearance owing to the large number of dilated venules and capillary and venous telangiectases." There were numerous angiomata on the mucous membrane of the nasal septum and on the tongue. The younger of the two patients had likewise cancer of the stomach and died in the hospital. Sections of the septum of the nose from the latter case "showed many large dilated veins just beneath the epithelium."

Family 6.—Osler's third case[8] was that of a man, aged 49 years, who had been subject from childhood to attacks of epistaxis which recurred at short intervals. Except for the epistaxis he had been a healthy man. There were multiple telangiectases of the skin and of the mucous membranes of the nose and mouth. In this case cauterisation of the angiomata on the nasal septum seemed at one time to do good. So far as the patient himself knew "there were no bleeders in his family and none of the members had had serious attacks of epistaxis."

Family 7.—C. O. Hawthorne[9] has recently published a short note of the case of a woman, aged 49 years, with bright red telangiectases scattered over both cheeks and with a few on the fingers of the right hand. She had been subject to repeated epistaxis from childhood. Her father and a sister were troubled in the same way and both of them, as well as her eldest daughter, had "spots" like those on her own face. All her nine children had had more or less numerous attacks of epistaxis.

Family 8.—Brown Kelly's patients[10] were two sisters, aged 41 and 40 years respectively. Their father had been subject to attacks of epistaxis and vomiting, and he had "spots" on his face similar to those on their own faces; he was said to have died at the age of 62 years in consequence of frequent bleedings from the nose. The elder of the two patients died suddenly from syncope induced by severe epistaxis. A daughter (aged 23 years) of the elder patient had lately also developed telangiectases on her face. In Brown Kelly's patients, as in some of the other recorded cases, it does not appear that the telangiectases were present in early life. In fact, the obvious angiomata on the skin in these cases, as Brown Kelly points out, are not usually observed until the patient is approaching middle life, and "the most striking development of the telangiectases seems to take place from the age of 35 or 40 onwards."

Dr. W. Bligh[11] says that a man, aged 32 years, required his assistance on account of bleeding from the left forearm. On examination the source of the hæmorrhage was found to be a minute nævoid growth, from which arterial blood was spurting freely. Similar nævoid growths were present on the back of the left wrist, on the side of the neck, and on the forehead. The growths varied slightly in size, but the largest was no bigger than the head of a "carpet pin." He had been previously troubled with violent bleeding from more than one of the little tumours. Dr. Bligh destroyed all the little growths by cauterising them, but a few months later bleeding occurred from a fresh tumour on the face; two other fresh ones had likewise appeared upon the forehead. These were all destroyed in the same way. The patient was healthy and not hæmophilic. Dr. Bligh has kindly informed me that there is no history of angiomata in the family of his patient, but nevertheless I mention the case here as it is well known that usually "familial" diseases do occasionally present themselves in an apparently isolated fashion.

Though Dr. Bligh's case may not belong to the group under consideration it is a remarkable example of the kindred condition of multiple late developmental angiomata. An equally striking example of the latter condition is furnished by a case shown by Dr. F. J. Smith at the Medical Society of London on April 4th, 1898.[12] Dr. Smith's patient was a woman, 50 years of age, with multiple venous angiomata chiefly on the face and upper part of the trunk, varying in size from that of a pea to that of a small bean. In addition she had varicose veins of both lower extremities and both labia majora. Nine months previously, according to the patient's own account, she was perfectly well and had no varicose veins even in the legs. About that time she noticed a small painful spot on the right side of the nose, which came up like a small red pimple; soon after this some other red spots appeared on the back and shoulder and these spots later became bluish. In the case of a middle-aged man shown at the Dermatological Society of London on Dec. 12th, 1900,[13] with multiple bluish nodular angiomata on various parts of the body and face, there was a decided family history of multiple venous angiomata. Some of his little tumours dated from birth, others had

[1] Johns Hopkins Hospital Bulletin, November, 1901, p. 333.
[2] Glasgow Medical Journal, June, 1906, vol. lxv., pp. 411–422.
[3] THE LANCET, Sept. 23rd, 1865, p. 362. I have not looked up other literature on "hereditary epistaxis."
[4] This paper was apparently omitted from the Transactions of the Royal Medical and Chirurgical Society, but a lengthy summary appeared in THE LANCET, Dec. 16th, 1876, p. 856.
[5] Erfahrungen auf dem Gebiete der Hals-und Nasenkrankheiten, Vienna, 1887, p. 60. I have only been able to refer to Brown Kelly's (loc. cit.) references to Chiari's cases and have not seen Chiari's original paper.
[6] Gazette des Hôpitaux, Paris, Nov. 24th 1896 1322.
[7] Loc. cit.
Loc. cit.
[9] THE LANCET, Jan. 13th, 1906, p. 90.
[10] Loc. cit.
[11] Note on a Case of Bleeding Telangiectases, THE LANCET, Feb. 23rd, 1907, p. 506.
[12] Transactions of the Medical Society of London, vol. xxi., p. 358.
[13] I cannot find the account of this case in British Journal of Dermatology.

only recently appeared. The occurrence in elderly persons of small multiple cavernous angiomata of the lips and mouth is probably not very rare.

The conclusions at which I arrive are the following. 1. That the disease (or morbid syndroma) which I am more especially considering in the present article affects and is transmitted by both sexes. 2. That the hæmorrhage in most cases is only from the nasal mucous membranes. 3. That in most cases the morbid syndroma is not connected with any hæmophilic tendency or any diminution of blood coagulability. 4. That the cutaneous angiomata are generally not congenital but that they are "late developmental" and usually first attract attention towards middle life. Some of the minute red spots of the capillary angioma class tend to develop into raised bluish nodules approaching the cavernous venous angioma in character. 5. That in most cases a tendency to nose-bleeding has been present from early life, or at all events many years before any cutaneous angiomata have been observed. 6. That with advancing years both the attacks of hæmorrhage and the anæmia usually become more severe. 7. That probably a kind of "vicious circle" is established, the repeated attacks of bleeding giving rise to a grave condition of anæmia, which in its turn increases the tendency to hæmorrhage. This consideration would furnish a reason for occasionally employing iron and arsenic as part of the treatment. 8. That the hereditary nature of bleeding telangiectases of the nasal mucous membrane may be compared to the occasional family tendency to suffer from hæmorrhoids, or to have ordinary varicose veins of the lower extremities, or multiple smaller varices and multiple hair-like cutaneous telangiectases on various parts of the body.[14] Hæmorrhoids in some cases may, in fact, be termed "hereditary developmental bleeding angiectases."

The study of families affected with multiple angiomata of the skin and mucous membranes might help to throw light on the general subject of pathological inheritance in man. In these cases it is the morbid tendency only which is inherited, just as it is in cases of hereditary tendency to pulmonary tuberculosis, but the study of the latter hereditary tendency is complicated and obscured by the fact that the advent of a microbe (the tubercle bacillus) is necessary for the fulfilment of the "morbid promise" or potentiality in question.

Harley-street, W.

[14] Cf. F. Parkes Weber: A Note on Cutaneous Telangiectases and their Etiology: Comparison with the Etiology of Hæmorrhoids and Ordinary Varicose Veins, Edinburgh Medical Journal, April, 1904, p. 346. In regard to the view that varicose veins are venous overgrowths, allied to venous angiomata, see A. Pearce Gould's Lettsomian Lectures in Transactions of the Medical Society of London, 1902, vol. xxv., p. 132; also W. Thorburn's remarks on Developmental Varix, Brit. Med. Jour., Nov. 17th, 1900, p. 1421; and Sir W. H. Bennett's remarks on Congenital Varix, THE LANCET, Nov. 22nd, 1902, p. 1374. For similar views regarding the etiology of hæmorrhoids see G. Reinbach, "Path.-anat. und Klinische Beitrage zur Lehre von den Hämorrhoïden," Beiträge zur Klinischen Chirurgie, Tübingen, 1897, vol. xix., p. 1; and "Hämorrhoiden im Kindesalter," Mittheilungen aus dem Grenzgebieten der Medizin und Chirurgie, Jena, 1903, vol. xii., p. 272.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF PARTIAL PERFORATION OF THE BOWEL SIMULATING APPENDICITIS; OPERATION; RECOVERY.

BY W. PERCY BLUMER, F.R.C.S.EDIN.,
HONORARY SURGEON TO THE SUNDERLAND INFIRMARY.

THE patient, a coal hewer, aged 48 years, was admitted to the Sunderland Infirmary under my care on April 21st, 1907, complaining of a very severe pain in the right inguinal region and shooting across the abdomen. The history of the case was as follows. Whilst working in the Ryhope pit about 8 P.M. on April 18th he strained himself by slipping his foot when pushing a tub. He felt as if "something had torn in his bowels." There was no acute pain felt then nor for some hours afterwards. He continued to work until midnight—the end of the shift—with only momentary interruptions. The only other symptom which caused him any trouble was an urgent desire to micturate. He was able to pass a pint of clear urine and also had an action of the bowels. After finishing his work he was conveyed home to Ryhope by ambulance car and was seen by his medical attendant very soon afterwards. On examination there was no localised tenderness in the abdomen nor did palpation or percussion reveal anything abnormal. There was dorsal decubitus with both legs drawn up and abdominal facies. The temperature was 99° F. and the pulse was 76. Twelve hours later pain began in the hypogastrium and gradually became diffused over the abdomen. Tenderness on deep pressure was present over the appendix area. The temperature was 102° and the pulse was 80. There was no sickness. The subsequent symptoms changed but little up to the evening of the 21st (the date of his admission), the temperature fluctuating between 101° and 103° and the pulse always being below 80, with a gradual diminution in tone and volume. There was no history of any previous attack.

On admission to the infirmary the patient was in a rather collapsed condition (having driven three miles) and in great pain. There were great tenderness, rigidity, and some fulness over the right iliac fossa. He had a dry tongue and a feeling of nausea but there was no vomiting. The temperature was 101° and the pulse was 104. The symptoms pointed to appendix abscess. His abdomen was opened over the appendix area within an hour of admission. Recent inflammatory adhesions were found in the neighbourhood of the appendix. A small tear through the serous coat of the anterior part of the cæcum was found situated about two inches from the root of the appendix. The inner coats were bulging through. A purse-string suture was applied to the rent and the appendix, which was healthy, was removed for safety. For the first three days after the operation the condition of the patient was one of collapse, giving rise to some anxiety, but thereafter recovery was uninterrupted, and he was discharged quite well on May 23rd.

I have not been able to find the record of a similar case. The interesting points seem to be: an apparently simple slip causing a comparatively severe injury, the man being able to work for three or four hours after the injury, and the simulation of appendix inflammation.

I am indebted to Dr. Alfred Rutter of Ryhope and to Mr. Lionel H. Booth, my house surgeon, for the notes of the case.

Sunderland.

INJURY TO SHOULDER; HERPES ZOSTER; INFLUENZA.

BY JOHN ALLAN, M.B., CH.B. EDIN.

THE following case presents several points of interest and the sequence of events is unusual. A youth, 18 years of age, was seen on March 30th, 1907, on account of injury to his left shoulder. It appeared that when at work he fell and struck the back of his left shoulder against a block of wood. On examination no bruising was seen and no fracture or dislocation could be detected. Lead and opium lotion was applied to the part. During the next day or so he complained of pain at the back of the left shoulder and arm, but nothing definite could be made out to account for it. On April 3rd there appeared a herpetic eruption on the posterior aspect of the left side of the chest and on the left arm and forearm. This was accompanied by a good deal of pain. The temperature was slightly raised and the patient felt out of sorts generally. He was put to bed and the eruption was dusted with a simple dusting powder. He was given salicylate of sodium (15 grains) thrice daily and fresh vesicles as they appeared were painted with collodion. He progressed favourably until April 8th. On that date his temperature rose to 102·6° F., he was sick and vomited frequently, and he complained of headache and sore throat. On the following day his temperature was 103·8° and a scarlatiniform rash appeared over his body. This was most marked over the lumbar region and the buttocks. The face and neck and the extremities were not affected by the rash. The throat was very much congested and he had great difficulty in swallowing even fluids. He had pains throughout the body generally, especially in the back. Five grains of salicylate of quinine were given every four hours instead of the salicylate of sodium and a potassium chlorate gargle was prescribed. The temperature next morning was 103·2°, and thereafter it gradually fell to normal. The rash disappeared

after 48 hours and the other symptoms gradually got less severe and by April 16th he was quite convalescent. A tonic mixture was then given and by April 20th he was cured. There was no desquamation.

In this case it is somewhat difficult to decide whether the initial pain complained of resulted from the injury to the shoulder or whether it merely heralded the onset of the herpes zoster, the fall either precipitating the onset of the herpes or drawing the patient's attention to the pain. The attack of influenza which subsequently supervened is interesting because it was accompanied by a rash, a rather uncommon though not unknown occurrence. That it was influenza is proved because several people who came in contact with the patient contracted influenza and the nurses in attendance developed influenzal colds. The rash, too, had not the characteristic distribution of scarlet fever and there was no subsequent desquamation.

Kidderminster.

A CASE OF SUPERNUMERARY DIGITS.

BY WILFRID H. W. ATTLEE, M.D.CANTAB., M.R.C.S.ENG., L.R.C.P. LOND.

THE accompanying illustration of the hands of a newly born male infant may be of interest. On each hand there was an extra digit attached to the ulnar side of the little finger by a soft pedicle consisting only of skin and blood-vessels.

Reproduction of photograph of infant's hands showing supernumerary digits.

Each digit had a well-formed nail. In all other respects the hands were normal. The child's parents are first cousins and one of their uncles had a supernumerary thumb on one hand. This man would be the infant's great-uncle.

Eton.

Medical Societies.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on July 11th, Mr. W. D. Spanton, the President, being in the chair.—Dr. J. Hutchinson Swanton showed a specimen of Fibromyoma of the Vagina and read notes of the case. This occurred in a widow, aged 40 years, who gave a history of five pregnancies and four abortions, the last being five years previously. The clinical history was one of endometritis. The tumour was discovered in routine examination high up on the anterior wall and presented no symptoms. Removal was recommended as it increased in size recently. It was found to be a pedunculated fibromyoma measuring three-quarters by one-third of an inch.—In the discussion which followed Dr. H. Macnaughton-Jones said that such tumours were comparatively rare. It was important to know whether they became degenerated or malignant. Such growths were sometimes sarcomatous.—Professor J. W. Taylor had met with similar growths four times and in one instance it recurred three times after removal, although on examination presenting the histological characters of a myoma.—Dr. J. J. Macan raised an interesting point in the pathology of these tumours.—The President said that the question centred around the possibility of these growths becoming malignant.—Dr. Swanton also showed a specimen of Cystic Adenocarcinoma of the Ovaries and Vermiform Appendix removed from a patient, aged 69 years, originating in cystic growths and becoming malignant.—The President remarked on the extreme malignancy of these growths when arising in such a manner.—Dr. A. E. Giles commented on the diagnosis and said that carcinoma of the ovary was not often directly diagnosed, especially where there was no free fluid.—Dr. Macnaughton-Jones considered that the prognosis depended upon the escape of carcinomatous fluid into the peritoneum or not.—Dr. Macan said that malignant disease very frequently involved both ovaries, although not in an equal degree.—Dr. E. A. Neatby wished to know whether ovarian carcinoma occurred more frequently as a primary or secondary condition. He related an interesting case where recurrence took place in the adjacent intestine some months after removal of the ovarian tumour.—Dr. Macnaughton-Jones showed a specimen of Large Myoma removed from an unmarried patient, aged 32 years, who complained of menorrhagia and secondary anæmia. The growth was encapsuled by peritoneum and arose from the right of the body and cervix burrowing under the peritoneum. Another peculiarity was the presence of a lymphatic sac which seemed like the dilated and thinned-out body of the uterus undergoing degeneration. Both ovaries were removed as they were cystic and had degenerated.—Professor Taylor thought the cavity might be accounted for by the separation of layers of the peritoneum.—The President considered that the condition might be explained as being the result of peritonitis.—Dr. Swanton showed a Cyst of the Clitoris removed from a patient, aged 20 years, who thought that it was due to trauma and commenced three months previously. The growth was situated at the anterior extremity of the left labium minus, being three-quarters of an inch across. The clitoris and cyst were removed. The contents consisted of blood, pus, and sebaceous matter.—The President thought that such cases were rare and suggested that it might have had an origin similar to that of vaginal cysts.—Professor Taylor thought that the position was unusual and regarded it as a suppurating sebaceous cyst.—Dr. Macan said that such cysts were very rare. In the absence of further microscopical details it was difficult to decide as to the nature of the cyst.—The President then delivered his valedictory address and said that the amalgamation of the societies would act as an incentive to closer observation and more scientific methods. He hoped that the provincial members would come forward in the future as in the past. The death of the society meant but an entrance into a higher life of greater usefulness and enlarged opportunities in communion with similar interests. He then gave a *résumé* of the work accomplished by the society during the last 23 years. The first specimen shown was a multiple uterine myoma removed by hysterectomy. The view then expressed was that now held that to extirpate a tumour simply because it was a tumour which gave little or no trouble implied taking a responsibility on the part of the surgeon which he ought to decline. Other subjects discussed included matters such as asepsis, antisepsis, puerperal septicæmia, Porro's operation for cancer of the uterus, electrolysis in fibroid tumours as advised by Apostoli, myomata and pregnancy, morbid pelvic states and associated mental conditions, and displacement of the uterus and the use of mechanical supports. During the short session now brought to a close the subjects were of a practical nature and included uterine hæmorrhage, membranous dysmenorrhœa, prolapse of the uterus, inflammatory diseases of the appendages, mobile kidney, and the treatment of general peritonitis.—Hearty thanks were accorded to those who assisted in bringing about the amalgamation.—The meeting unanimously agreed—

That we desire to record our appreciation of the courtesy and cordiality with which the Obstetrical Society of London united with our society in their arrangements for amalgamation.

—The meeting then terminated and the President signed the minutes.

EDINBURGH OBSTETRICAL SOCIETY.—A meeting of this society was held on July 10th, Dr. J. W. Ballantyne, the President, being in the chair.—Professor J. A. C. Kynoch (Dundee) read a paper on a Series of Five Cases of Cæsarean Section for Contracted Pelvis. Three of the patients had been born in Glasgow. The first patient was in her second pregnancy; in her first she had been delivered of a stillborn child by version, after repeated attempts with forceps in Walcher's position had failed. The true conjugate was about three inches, the pelvis being of the small, flat, rickety type. The case was unfavourable for the performance of induction of premature labour. The mother and child did well. The

second patient was a primipara in labour for 24 hours, with a true conjugate under two and a half inches; both did well. The third patient was in her second pregnancy; the first child was delivered by craniotomy; her true conjugate was two and three-quarter inches. She was operated on near to full time; the child lived but the mother died from septic peritonitis. The fourth patient was a primipara in labour for seven hours; her true conjugate was two and three-quarter inches; both did well. The fifth patient was a primipara in labour with a true conjugate of two and three-quarter inches; both mother and child recovered. The surviving mothers all nursed their infants. Professor Kynoch discussed the question of sterilisation and considered that if the patient was intelligent enough to understand the situation, and if she was willing to undertake the risk of a second operation, then sterilisation might be omitted at the first operation. Many cases had been reported where the operation had been repeated successfully two, three, or four times on the same patient. In Frau Rittgen's case it proved fatal at the fifth repetition of the operation. In all the cases reported Professor Kynoch had sterilised the patient by ligature and division of the tubes; this he considered a trustworthy enough method and safer to the patient than hysterectomy, which should be restricted to cases of atony and suspected infection of the uterus. Some recommended waiting till labour had begun, as they thought there was less chance of hæmorrhage from uterine atony and that a dilated condition of the cervix insured free drainage of the lochia. The first fear was groundless, as the uterus contracted quite as well before as after the onset of labour. A dilated condition of the cervix was of the greatest importance. In the first two cases Professor Kynoch incised the uterus between the bars of a flat vulcanite pessary, as recommended by Cameron, to diminish hæmorrhage from the uterine incision, but in the latter cases he discarded this method and did not find any marked difference in the amount of bleeding as a result. Further hæmorrhage in the course of the operation was best controlled by grasping the broad ligaments and subsequently maintaining uterine contraction by sponge pressure. The uterine incision in all cases was a vertical one; the transverse incision of Fritsch did not seem to have proved itself in any way superior. If sterilised towels were well packed round the uterus it was not necessary to adopt Müller's suggestion of eventrating the uterus before opening into it, as this involved a very large abdominal incision. But after the uterus had been emptied of its contents and as a consequence diminished in bulk the introduction of the uterine sutures was facilitated by bringing the uterus outside the abdomen.—Dr. A. H. F. Barbour, Dr. J. M. Munro Kerr, Dr. W. Fordyce, Dr. J. Lamond Lackie, and the President made remarks on the paper, and Professor Kynoch replied.—Dr. James Lochhead read a paper on the Carbohydrate Metabolism of the Fœtus. The part played by carbohydrates in the metabolism of the fœtus was discussed with special reference to the glycogen. An attempt was made to trace the changes which carbohydrates undergo in their passage from the maternal to the fœtal organism.—Dr. Barbour, Dr. James Ritchie, Dr. B. P. Watson, Dr. M. Campbell, Dr. Fordyce, and the President discussed the subject, and Dr. Lochhead replied.—Dr. Seichu Kinoshita, professor of gynæcology and obstetrics of the Imperial University, Tokio, Japan, was elected an Honorary Fellow.

Reviews and Notices of Books.

The Nutrition of Man. By Professor RUSSEL H. CHITTENDEN of Yale University. With illustrations. London: William Heinemann. 1907. Pp. 321. Price 14*s.* net.

THIS new work by the author of "Physiological Economy in Nutrition," which was reviewed in THE LANCET of July 8th, 1905, p. 84, covers to a considerable extent the result of the researches set forth in that work. Since the time when Professor Chittenden studied under Kühne few men have devoted themselves more assiduously to the study of the problems of nutrition in man. Indeed, in the United States this is a subject which has attracted great attention. Authors, such as Atwater and the workers for the *U.S. Bulletin*, have done an enormous amount of useful work. In the end the object is the study of human nutrition.

The present book is the outcome of a course of eight lectures which have been delivered before the Lowell Institute of Boston during the present year. The first three chapters—on Foods and their Digestion, Absorption, Assimilation, and Metabolism—do not contain anything new, but give a very readable account of these subjects. We may in passing give an example of the happy expressions from the work of Dr. Curtis on "Nature and Health" to which reference is occasionally made. "Alongside of its brother proteid gelatin stands as a prince of the blood whose escutcheon bears the 'bend' sinister. Such a one, though of royal lineage, never aspires to the throne." This has reference to the fact that gelatin cannot even go to make the very kind of tissue of which itself is a derivative. We are treated to the results of Pawlow's work in connexion with the æsthetics of eating in relation to their important influence upon the flow of digestive secretions. Perhaps the following may interest the reader—viz., that the quantity of hydrochloric acid secreted by the stomach by the normal individual under ordinary conditions of diet amounts to what would constitute a fatal dose of acid if taken at one time in concentrated form. While three distinct ways—all reflex—are admitted for the flow of gastric juice into the stomach as a prelude to gastric digestion, and although secretin is treated of in connexion with pancreatic digestion, we failed to find a reference to the part played by gastric secretion as pointed out by Edkins. The curdling of milk in the stomach causes the casein to remain for a longer period in the stomach, like any other food, and its partial digestion by gastric juice to be made certain. Hence, for these reasons milk should not be treated as a drink in our daily diet. Each animal has its own particular type of proteid adapted to its particular needs. This leads to the ingenious theory of Abderhalden that the intestinal ferments ultimately split up proteids, leaving, however, a very resistant residue, non-proteid in nature, which is termed polypeptid and which may serve as a starting point for the synthesis or construction of new proteid molecules. Cohnheim's researches, however, go to show that ferments break down proteids completely. At most, however, digestion is the handmaiden of nutrition. We come across the following remark: "How wise the provision that all sugar should pass from the alimentary canal into the portal system." We find no reference to Heidenhain's explanation. The importance of intracellular enzymes is emphasised; indeed, in all tissues and organs of the body there is present a large number of enzymes of different types, endowed with different lines of activity. Man's body is always in a state of unequilibrium; it is a sort of "maelstrom" of continuous chemical changes and decomposition at the expense of the proteids, fats, and carbohydrates of the food and tissues with the liberation of the stored-up energy of these organic compounds.

It is in the chapter on the Balance of Nutrition that the author foreshadows his views. One fact of importance is that the nitrogen outgo tends to keep pace with the income of nitrogen, the body always striving to maintain a condition of nitrogen equilibrium. The human body does not store up proteid, no matter how greatly the tissues are in need of replenishment. In man it is impossible to accomplish any large permanent storing of flesh by over-feeding and the muscular strength cannot be greatly increased by excessive intake of food. Marked permanent deposition of flesh is connected with the "regenerative energy of living cells." Race and individuality count for much. "A given diet with Cassius may lead to different results than with Anthony." Obviously, the diet must depend largely on the muscular work done, and this in

turn will depend on the material used up in connexion with muscular work. The energy may come from all three classes of organic foodstuffs. Even in fasting animals, where the store of carbohydrate is more or less used up, severe muscular work causes no little appreciable increase of nitrogen output, showing fat as the source of the energy; indeed, only about 1 per cent. of the animal's proteids is eliminated each day.

The latter half of the volume deals with the "*true* nutritive requirements of the body." According to the author, arguments based on the dietetic customs and habits of mankind are not to the point, nor are instinct and craving wise guides to follow in the choice and quantity of food. Direct physiological experiment is the guide to the "ideal diet" (p. 165). The author cites his own observations on proteid diet already published, such as those on 20 men from the Hospital Corps of the army, and again he comes to the same conclusion as before that the body weight and nitrogen equilibrium can be maintained on an amount of proteid food far below the fixed dietary standards. University athletes are then referred to, and the results of Fischer of Yale on strength as distinguished from endurance are considered, and the same conclusion is arrived at as regards the reduction of proteid food. Overfeeding is the predominant dietetic sin. As to resistance to disease, the author has no evidence that this is diminished on his reduced proteid diet. A new group of experiments on dogs to test the effect of low proteid diet on high proteid animals is detailed and the results again confirm the author in his opinion. It will be seen, therefore, that the author maintains his position as to the excessive amount of proteid even in our "normal" and "standard" dietaries. This work is largely a reflex and extension of his previous volume.

Archives of Neurology. By F. W. MOTT, M.D. Lond. London: Macmillan and Co., Limited. Pp. 626.

THE third volume of the "Archives of Neurology" of the Pathological Laboratory of the London County Asylums, consisting of the record of work done by Dr. F. W. Mott and by assistants under his direction, is a most notable achievement. Dr. Mott has truly founded a school of pathology in this country, and as his opportunities are great so has he taken corresponding advantage of them. The London County Council, in applying its money to the maintenance of research work and in not stinting the means at its disposal, is in reality doing the work of a State-aided academy, and by these published results it justifies its confidence in the zeal and diligence of its officers who, relieved of departmental and economical worry, are able to carry out investigations in the true scientific spirit untrammelled by perfunctory monotony.

Of the 26 chapters in the book 15 are written by Dr. Mott (one, however, in conjunction with Dr. W. D. Halliburton) and 11 by others connected with the laboratory. Some of these chapters are in reality essays, involving much time and laborious investigation, and whilst some are sufficiently distinctive to constitute a life-title for excellence in research work, others may be characterised as distinguished, whilst none are mediocre. Merely to name the subjects of the various contributions is unnecessary because our limits do not allow us to criticise them all, but we may call especial attention to three of them—viz., the Mammalian Cortex, with Special Reference to its Comparative Histology, the Suprarenal Glands in Nervous and other Diseases, and the Effects of Alcohol on the Body and Mind as shown by Asylum and Hospital Experience. The first named of these is the "Bowman Lecture," founded on work done by Dr. Mott in the laboratory at Claybury. It is an epoch-marking contribution and by itself stamps the originality and profundity of the author. The second article, written in conjunction with Dr. Halliburton, is of great interest not only to those concerned with the treatment of insanity but to general physicians, whilst the third is of immense importance for every practitioner of medicine.

One chief value of the work is the model that it provides of what can be done by the personality of a central director in associating with himself contributors and workers in many different directions, forming a totality energised in bringing its materials to elaborate the unity of the processes of disease in all parts of the body.

The book is not for everyone to understand. To read it presupposes a large amount of training and special knowledge, and as it represents years of work so will it take a considerable time for assimilation, but it may be taken up at disposable moments and gradually incorporated, with the conviction that it relates facts to be stored up and not mere probabilities which do not merit the trouble of acquisition. There is nothing electric about the book, nothing startling in the shape of fascinating theories, but it is a solid piece of thorough work which may be safely used as an effective cantilever for further additions. Dr. Mott hopes that by more extensive collaboration it will be possible for sufficient research work to be produced to enable a volume to be published annually. We hope, however, that no pressure will be put upon the workers, no stress to produce a volume annually merely because so many months have elapsed. The drawings and photo-micrographs are of great excellence. We should prefer to find the leaves cut and we venture to suggest an index in future volumes.

Food and Hygiene. By WILLIAM TIBBLES, LL.D., L.R.C.P. Edin., M.R.C.S. Eng., L.S.A. London: Rebman, Limited. 1907. Pp. 672. Price 8*s.*

"FOOD and hygiene" is a well-nigh inexhaustible subject and anyone dealing with it must realise the difficulty of keeping his observations within such limits as not to exceed the space usually allotted to a text-book of average size. The chief merit of the book before us is that the author has contrived to cover a good deal of ground within the limits of a volume which is decidedly less bulky than are many standard works on the same subject. In doing so he has sacrificed on the whole very few, if any, essential points. He has in particular succeeded in conveying to the reader the relations between food and health. Starting with some generalisations on food in its relation to the wear and repair of the body, he prepares the reader with a good priming of physiological and chemical knowledge so far as they bear on the great metabolic processes. Next he introduces him to the materia alimentaria in 11 well-written chapters, the two chapters at the end of this section dealing with water, air, ventilation, climate, clothing, and so forth. In the chapter on stimulants and narcotics he acknowledges drawing a good deal of material from the pages of THE LANCET. He quotes, for example, numerous analyses of wines and spirits which have been published from time to time in our columns. We may be excused for pointing out that some of the figures are incorrectly printed; the higher alcohols for "three star" brandy should read *120·58* and not 12·0, while the footnote incorrectly states that the secondary products are reckoned in grammes per litre. "Per litre" should read *per 100 litres of absolute alcohol present.* The chapter on water, though short, sums up the situation very well in the light of modern knowledge and of course includes a reference to the share which bacteriology and chemistry take in elucidating questions of the fitness or unfitness of water for drinking purposes. We must, however, point out one mis-statement in this section. In describing the simple test for the presence of organic matter in water, which consists of adding some permanganate of potassium to the water and observing whether the colour

of the liquid changes or whether a deposit is produced, it is stated (p. 313) that "the organic matter in the water will be oxidised and deposited as a brownish sediment." The "brownish sediment" is not the organic matter but the manganese hydrated oxide which separates as a result of the permanganate being reduced by organic matter. In most cases the organic matter would very probably be oxidised into carbonic acid gas, water, and nitrogen, and these clearly do not form the elements of a sediment. Part III. is devoted to the important subject of food and hygiene in sickness and here again the author may be congratulated on his choice of facts and on his power of discriminating essentials from detail. On the whole, the author has carried out his responsibilities well and has succeeded where not a few fail in harmonising theory with practice so far as that is possible in the light of modern views.

LIBRARY TABLE.

Hadden's Pocket Vocabulary of Medical Terms. By HENRY PAYNE, M.D. Brux. Fourth edition. Revised and enlarged by PHILIP COWEN, M.D. Durh., and HERBERT DAVEY of the Middle Temple. London: Hadden, Best, and Co. Pp. 229.—The object of this vocabulary is to supply a want felt by registrars, Poor-law officials, and others who, not being medical men, have still much to do with the profession in the way of receiving death and other kinds of certificates. In selecting the words those have been chosen that are in most frequent use among the members of the profession; a few others are added for the help of nurses who often hear words used by a surgeon that do not indicate diseases but simply symptoms. In giving the pronunciation, the words have been divided into syllables, spelt as sounded, and those to be accented are indicated by the mark ' placed above and beyond the syllable; in addition some of the vowels are sounded long and others short, these being indicated by the usual signs. The meanings of the words are given as simply as possible; a very short account is added of some of the symptoms of the diseases. An explanatory list of parasitic diseases is also included. The little book is a very useful one for those for whom it is intended; we can recommend it as a careful compilation.

Surgical Emergencies. By PERCY SARGENT, M.A., M.B., B.C. Cantab., F.R.C.S. Eng., Surgeon to Out-patients, St. Thomas's Hospital; Assistant Surgeon to the National Hospital for the Paralysed and Epileptic, Queen-square; and Surgeon to the Victoria Hospital for Children, Chelsea. (Oxford Medical Manuals.) London: Henry Frowde and Hodder and Stoughton. 1907. Pp. 256. Price 5*s.* net.—This is a little book likely to be useful to the junior members of the profession when confronted with surgical emergencies, or rather it should be read and the teaching contained in it should be assimilated before the emergency arises, as when sudden need occurs there is little time for referring to books. As the author mentions in the preface, it is not complete but deals with the more common of the surgical conditions in which prompt action is needed. The chapters are headed Hæmorrhage, Burns, Fractures, Strangulated Hernia, and so on. A chapter is devoted to the injuries and diseases of the ear and another to those of the eye. A dogmatic style is employed, which is best adapted for those who need help suddenly. The book is well printed in large type.

A Manual of Prescription Writing. By MATTHEW D. MANN, A.M., M.D. Revised by EDWARD COX MANN, M.D. Sixth edition, revised according to the United States Pharmacopœia of 1906. London and New York: G. P. Putnam's Sons. 1907. Pp. 232. Price 4*s.* net.—The fact that this little book has reached a sixth edition is a sufficient guarantee of its utility. The posological information is based on the United States Pharmacopœia and is prefaced by the naïve statement that "the determination of the doses for the different drugs, proper under all circumstances and conditions, is simply impossible." The remaining chapters are of equal use to English and to American students and deal with the pharmaceutical and grammatical construction of prescriptions with examples of all the various methods of exhibiting drugs, in which the metric equivalents of doses are given. A good list of incompatibles concludes the book. It is at this date somewhat strange to read in the original preface of 1878 a complaint of the lack of text-books dealing with the subject.

The Annual Charities Register and Digest. With an Introduction by C. S. LOCH, Secretary to the Council of the Charity Organisation Society. London: Longmans, Green, and Co. and Charity Organisation Society. Sixteenth edition. Pp. cccxxiv. + 705. Price 5*s.* net.—This work is undoubtedly of the utmost value and contains an enormous amount of information which is conveniently arranged and exceedingly well indexed. The index is, indeed, its most salient feature as it enables anybody who is interested in a particular case of distress to discover at once all the available methods of dealing with it. The book is prefaced by the note: "As far as possible all fraudulent institutions and societies have been excluded. It must not be concluded, however, that the entry of a charitable institution in the Register is equivalent to a general recommendation of it." Although it would be an almost intolerable task to verify the *bona fides* of every institution mentioned there is no doubt that the great majority of them are in every sense described by the word "charitable," if we except such societies as those devoted to anti-vivisection and vegetarianism, and all who take an active interest in philanthropic work will find much to interest and to assist them in this book. The excellent introduction contains a full account of the methods of Poor-law relief and the importance of its coöperation with private enterprise. A review of the year is included and short special articles are contributed on subjects such as tuberculosis, inebriates, epileptics, provident dispensaries, rescue work, and so on. The bulk of the book consists of a directory of charitable institutions for every purpose, with a summary of their constitutions.

The Manipulation and Fitting of Ophthalmic Frames. By HARRY L. TAYLOR. Birmingham: J. and H. Taylor. 1907. Pp. 117. Price 4*s.*—It is advisable that every ophthalmic surgeon should know how lenses are ground and spectacle frames made and fitted. Mr. Taylor's book gives sufficient information upon the latter subject and will repay perusal, since it does not go too technically into the question. We welcome the book as an indication that British opticians are taking more care in the fitting of glasses than has been their custom in the past. It is second only in importance to the correct ordering of lenses and should occupy their attention to the exclusion of functions which they are unqualified to deal with.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXV. Nos. 5 and 6. July 2nd, 1907. London: C. F. Clay. Pp. 143. Price 9*s.*—The articles contained in these numbers, which are issued under one cover, are: 1. The Innervation of the Bladder and Urethra, by T. R. Elliott, George Henry Lewes student. This is a long and carefully prepared article which does not admit of being briefly abstracted, but the chief conclusions at which Mr. Elliott has arrived from experiments upon cats, dogs, rabbits, ferrets, goats, mongooses, and other animals are that the physiological innervation of the bladder varies in different genera of animals, so that whilst in all mammals the pelvic visceral or sacral

nerves cause the whole bladder to contract, in some, as the cat and rabbit, they also inhibit the sphincter. Hence the nervi erigentes, or pelvic visceral nerves, springing from cells situated in the sacral segments of the cord below the lumbar enlargement, are the nerves of micturition. In the cat, and in a less degree in the monkey and pig, the hypogastric nerves, which have a root origin above the lumbar enlargement, constrict but do not shorten the urethra and relax the bladder. They are nerves which promote retention of urine. They do not have this action in man. Automatic rhythmic contractions practically only occur in bladders supplied with inhibitory nerves. In the dog the hypogastrics control only a very small area at the base of the bladder close to the sphincter. Universal inhibition of the bladder as in the cat is not observed. Variations in the extent of area innervated by the hypogastrics are found to exist in different animals, being large in the ferret and male goat and small in the rabbit, female goat, and mongoose. The effects, immediate and remote, of nerve section are given. 2. The Functions of the Epiglottis and of the Glosso-Epiglottic Fossæ, by T. P. Anderson Stuart, M.D., Professor of Physiology in the University of Sydney. Professor Stuart supports the generally accepted view that in deglutition the larynx is closed by the whole organ, as may be felt by placing the finger on the pomum Adami which is then drawn upwards and forwards under cover of the base of the tongue. The epiglottis shows little or no movement. The arytenoid cartilages are first apposed to each other and somewhat raised, and then together they glide and incline forwards to come into contact with the epiglottis, movements that are facilitated by the disposition of the squamous epithelium covering their surface. The taste buds on the laryngeal surface of the epiglottis are true organs of taste. 3. The Regeneration of the Post-Ganglionic Vaso-constrictor Nerves, Part II., by Basil Kilvington and W. A. Osborne. The conclusion arrived at by these experimenters is that when the sciatic nerve of the dog is divided in the mid-femoral region and immediately sutured complete regeneration of vaso-constrictor nerves need not be expected prior to the 205th day. 4. Cholein in Cerebro-spinal Fluid, by Otto Rosenheim, M.D., lecturer on chemical physiology at King's College, London. 5. The Physical Properties of Horse Serum, by John Mellanby, M.A. 6. Metabolism during Starvation—1, Nitrogenous, by E. P. Cathcart, M.D. Glasg. These numbers of the *Journal of Physiology* contain also the Proceedings of the Physiological Society for March 23rd and for May 18th, 1907, as well as the index and title-page for Vol. XXXV., 1906–1907.

St. Thomas's Hospital Gazette.—The June issue contains the concluding section of the very interesting paper on Alcohol and Insanity, read by Dr. F. W. Mott, F.R.S., before the St. Thomas's Hospital Medical and Physical Society. The different types presented are discussed and a brief account is given of the structural changes met with in the nervous system in cases of alcoholic polyneuritic psychosis. The paper is illustrated by micro-photographs and diagrams. Lighter fare is provided in an amusing skit entitled, "A Hospital Appeal," parodying the methods of a leading representative of another hospital.

St. Mary's Hospital Gazette.—The June number contains the valedictory address delivered by Dr. D. B. Lees, reviewing some of the opinions which are associated with his name. Thus, he emphasises the value of the ice-bag and bleeding in pneumonia and of the former alone in other inflammatory conditions. He accepts the micrococcus rheumaticus, or, as he here calls it, the rheumatococcus, as the proved cause of acute rheumatism and lays stress once more upon the dilatation of the heart which may occur in this malady as well as in diphtheria and influenza. He enforces the need for careful percussion of the cardiac area to ascertain the existence of dilatation of the different cavities of the heart, especially the right auricle and the left ventricle, and holds that salicylates often fail in rheumatic conditions owing to the employment of insufficient doses. Finally, he maintains that percussion is a most important aid in the early diagnosis of pulmonary tuberculosis, and that the treatment of this affection by inhalation of volatile antiseptics gives very gratifying results.

The Bristol Medico-Chirurgical Journal.—In the June number of this magazine Dr. J. Michell Clarke writes on Some Unusual Complications of Pneumonia, including peritonitis, thrombosis of vessels, endocarditis, nephritis and arthritis, and Dr. W. Kenneth Wills analyses 80 cases of Lupus Vulgaris, which he classifies under seven different types. Dr. Bertram M. H. Rogers records a case of Narcolepsy in a patient, aged about 30 years, who came of a neurotic stock, and Dr. F. Percy Elliott an instance in which compression of the aorta was successful in saving the life of a woman suffering from post-partum hæmorrhage.

The Bio-Chemical Journal. Edited by BENJAMIN MOORE, M.A., D.Sc., and EDWARD WHITLEY, M.A. Vol. II. Nos. 7 and 8. June 20th, 1907. University of Liverpool: Johnston Laboratories.—These numbers contain: 1. Allyl Sulphide, Some Aspects of its Physiological Action with an Analysis of the Common Leek (Allium porrum), by Wace Carlier, M.D., and C. Lovatt Evans. The authors found the composition of the leek to be: water and volatile oil, 88; fixed oil and glycoside, 0·65; resin, 0·48; organic acids and colouring agents precipitable by lead acetate, 1·10; sugars and extractives not precipitable by lead acetate, 2·24; gums and pectous substances soluble in water, 2·20; proteins, 1·55; pectous substances soluble in dilute NaOH, 1·69; cellulose, 0·77; soluble in B^a NH_4OH, 0·46; soluble ash, 0·72 (5 per cent. Cl); and insoluble ash, 0·14. The oil $(C_3H_5)_2S$ is yellow in colour, is absorbed with difficulty through the mucous membrane of the alimentary canal and skin, and is excreted by the lungs and skin, though not apparently by the kidney. In neurotic people garlic and onions act as an excitant. Allyl sulphide has no solvent action on uric acid or the urates. In rabbits the injection of 15 minims of a 1 per cent. solution of the oil caused in the first instance slight fall and then increase in blood pressure with reduction of the respirations from 51 to 39 and even 33 in the minute. 2. On the Effects of Acids, Alkalies, and Neutral Salts on the Fermentative Activity and on the Rate of Multiplication of Yeast Cells, by Eric Drabble, D.Sc., and Daisy Scott, M.Sc. The neutral salts of potassium and sodium fail when in small proportion to exhibit any marked inhibitory action on fermentation and the yeast cells reproduce actively in all strengths. Hydrochloric and nitric acids in strength 0·1 per cent. are fatal to the cells. 3. On the Phosphorus Percentage of Various Samples of Protagon, by A. C. Lockhead and W. Cramer, Ph.D. The authors found it to be 1·07 per cent. 4. Observations on the Behaviour of Opsonic and Serum Proteids during Pressure Filtration, by Warrington Yorke, M.B., Ch.B. Liverpool. The author finds that opsonins are not dialysable. 5. Heat Rigors in Vertebrate Muscles, by C. H. Vrooman, M.D., C.M. Winnipeg. The author finds that both the striped and unstriped varieties of mammalian living muscle subjected to a gradually rising temperature undergo two marked and comparatively sudden contractions, first, at about 47° C.; and secondly, at about 62° C. 6. The Conductivity of Blood in Coagulation, by T. M. Wilson.

HOUNSLOW HOSPITAL.—The question of the abuse of the out-patient department at this hospital is now under consideration by the committee of management, which has appointed a sub-committee to investigate the cases.

THE LANCET.

LONDON: SATURDAY, JULY 20, 1907.

Considerations as Regards the Administrative Control of Tuberculosis.

THE recent report of the Royal Commission on Tuberculosis has raised some extremely important issues with reference to the administrative control of the disease. So great is the influence of authority in swaying public opinion that the unwarranted statement made by Professor KOCH in 1901 had practically the effect of diverting all attention from the bovine animal as a source of tuberculosis in man and of attaching, at least for the time being, an altogether distorted importance to the human bacillus. Now, after some six more years, we are face to face with a statement equally authoritative and based upon experimental data of a far more trustworthy and scientific character than the few adduced by Professor KOCH to the effect that a very material amount of human tuberculosis is undoubtedly of bovine origin—how much cannot as yet be known. The answer depends upon whether the bovine bacillus can by residence in the human economy become so altered as to be indistinguishable from the human bacillus. If this is found to be the case it is not altogether inconceivable that the bovine animal before long may be shown to be the main source of tuberculosis in man. Side by side with these revelations are others based also upon experimental research of a high order which point very strongly to the conclusion that whether from the bovine or the human source it is in infancy that the major portion of human tuberculosis is acquired and that, having been acquired, it remains latent in the glands of the body until age proclivities, puberty, overwork, overcrowding, and other forms of physical and mental strain render the body a suitable soil for the multiplication of the latent bacilli and an obvious and active tuberculosis results, accompanied by efforts on the part of the parasite to free itself from its dying host and so to perpetuate its existence. Again, certain other experiments are tending, so far as they go, to discredit the theory of infection by inhalation; this method of contracting the disease is rare, some say impossible. On the contrary, the nearest route to the lungs is said to be *viâ* the intestines—i.e., by the route by which food and other particulate matter reach the economy.

Whilst these far-reaching controversies are being waged the disease, in so far as England and Wales are concerned, continues to decrease, as evidenced by the death-rate. Indeed, the behaviour of the disease in this country seems to suggest that tuberculosis, like leprosy and typhus fever, may be tending towards extinction, and the problem in administration which is presented to all intelligent minds is as to the means by which the decrease in the death-rate may be accelerated. Is this best attempted, according to the views of the lay mind, by dealing with tuberculosis as with small-pox, by locking up all those who present even suspicions of the malady, or is it practicable to hasten the departure of the disease in a fashion which is less drastic and which will not disorganise society to such an inconvenient extent? If it be true, as the Germans say, that everyone at death manifests a focus of tuberculosis and if it be true that a very large proportion of the population would manifest some reaction to the tuberculin test, it is clear that to search out, as is the custom in outbreaks of diphtheria, all those who are carriers of the bacillus would inevitably lead to commercial and social paralysis. The bulk of the population would be segregated and the non-tuberculous would remain in an isolation of a somewhat inconvenient character. It will at once be conceded that "stamping out" methods such as these are not likely to receive the consent of Parliament; indeed, the application of such methods might materially thin the attendances at Westminster. Some regard must be had to the proportions of the problem and a first and elementary distinction has to be made between "closed" and, to other persons, harmless tuberculosis as opposed to the "open" or tubercle expectorating form of the disease. It would be well if this distinction could be appreciated and acted upon. The suggestion to impose compulsory notification of pulmonary tuberculosis upon London with its 5,000,000 people is a proposal which in our view has not been fully digested, and it is to be hoped that medical practitioners will themselves take into consideration the desirability of discussing the question from their point of view. It is one thing to notify to the health authorities cases in which their visits can obviously prove of value in the matter of cleanliness, overcrowding, instruction, and so on; it is another to label as tuberculous persons who have years of work before them and who, on the most accentuated view as regards infectivity, are of no danger to their fellows. In many cases the medical practitioner might be allowed to use his discretion as to whether he should notify or not and, if necessary, he might by some legal provision short of compulsory notification of all cases, early or late, "closed" or "open," be relieved of legal consequences in the matter of professional secrecy in this sense.

As regards sanatoriums, we have still much to learn or, perhaps, rather much to unlearn. The public has been told that with sanatoriums alone it is possible to stamp out pulmonary tuberculosis. Those who have made this statement will, we trust, live to see its confutation. Sanatoriums are useful institutions, both from the point of view of treatment and of education, but the majority of those who are entering them to-day will have solved the riddle of the universe within the next four or five years, or be a charge upon the rates or their friends. The remainder will not improbably be performing useful work and may continue to do so for many years to come. But the erection of sanatoriums upon economical lines should be encouraged, as there is no doubt that they form a useful portion of the administrative machinery necessary to deal effectually with the problem of tuberculosis. It is to be feared, however, that what may be termed the small-pox standard of infection is leading to the erection of sumptuous institutions, costing sometimes as much as £1000 per bed, and to the provision of

enormous sites to allay the public dread as regards infection. All these things are not essential. There are to-day a large number of institutions constructed of wood or other cheap material which are affording opportunities for health and renewed vigour to numerous tuberculous patients who, were the £1000 per bed standard regarded as essential, would still be in their homes in the slums of large cities, and possibly in some instances infecting others with whom they lived. If these poor people are to be debarred from obtaining fresh air, food, and rest at a cheap rate by the requirement of standards necessitating at least 2000 cubic feet of space per bed, and walls around the site rising to seven feet, beyond which the patients are never to stray until death or "cure" releases them from bondage, there is not likely to be much progress made in the erection of sanatoriums, and if these unnecessary standards are to be made retrospective the majority of the sanatoriums must be closed and the patients sent back to their homes where, unrecognised and uncontrolled, they will await the final scene. It is to be hoped that no such restrictions will be imposed upon sanatoriums in which, so far as the evidence goes, the sick are not dangerous to the healthy. These are a few of the problems which are awaiting solution by the Local Government Board and we cannot say that we altogether envy it the task of determining what is practicable in the face of much which lacks the sense of proportion, more especially as at the same time it will be necessary to deal far more stringently with the food aspect of the tuberculosis problem, to control not only home-bred tuberculous milk and meat but also, to be strictly logical, the meat, cream, butter, and other dairy produce which reach us in such enormous quantities from other countries wherein we can inspect neither the cattle before slaughter nor the udders of the cows from which the milk is drawn.

Athletic Championships and National Physical Development.

THE winning of the Grand Challenge Cup at Henley for the second year in succession by a Belgian crew, the recent victories of Colonial football players, the success of M. MASSEY at golf, of Mr. GOULD at tennis, and of Mr. BROOKES at lawn tennis, with other similar incidents of athletic competition, have aroused a correspondence in various newspapers, contributed by writers who for the most part deplore these occurrences as if they were national calamities or symptoms of national physical decay. The coincidence of so many "championships" in athletic games being won within a short space of time by young men and women not of British birth may be without precedent, and to a limited extent may be due to all or some of the various causes which have been assigned to it by the letter-writers referred to—namely, to a growing "slackness" on the part of the British youth, to a tendency to look on at the games of champions, instead of partaking personally in such games without seeking any startling supremacy, or to a recently developed and increasing taste for cigarettes. It is, however, also possible to contend that these causes may have nothing to do with the matter or may only contribute towards it, or even to suggest that the loss of "championships" is not a national misfortune, and in part, at any rate, may be due to causes by no means to be deplored. If the failure to attain supremacy is due to the diminished numbers and deteriorating quality of the mass of healthy adolescents from which the ranks of the champions must presumably be recruited, we have a regrettable fact to deal with, but is it one which can be established? The champion oarsman, or cricketer, or golfer, or tennis-player is a being fitted by nature and educated by constant practice for the position which he and those who applaud him are prone, we suggest, to endow with an exaggerated importance. The falling off, if there be such, in the supply of athletes of championship standard may be due to a growing feeling that the importance of being a famous oarsman, or cricketer, or golfer, is one which, at any rate, is capable of exaggeration, and that those who devote themselves to a game between the ages of 22 and 40 to the detriment of their professional prospects may regret doing so when they compare themselves in middle age with contemporaries whose athletic feats were confined to their boyhood. Athletes of distinction have risen to high positions in after life, but such names as WORDSWORTH, CHITTY, DENMAN, BRETT, LYTTELTON, and REID revive memories of men whose constant and prominent participation in athletics ceased soon after they left college, at the age when a young fellow has to choose whether he will give up a favourite pastime a few years before nature will compel him to do so, or will start in the race of adult life heavily handicapped. We have mentioned the name of the headmaster of Eton and of his brother, the late Colonial Secretary, both among the most famous amateur cricketers of their day, and we might add that of Mr. A. G. STEEL, K.C. None can say that these gentlemen, had they devoted themselves for several years to county cricket after leaving Cambridge, would have attained the positions which they now occupy, or can deny that their university degrees, which possibly have not affected their careers materially, would have been higher had not the cares of the University Eleven to some extent diminished the time which they were able to devote to study. After all, does it matter to them now if, after attaining a position in the world of games which their contemporaries will never deny them, they realised in time that a game is but a game and abandoned it in favour of the pursuits of manhood? If we have referred above to the amateur athlete only much of what we have said might be adapted to the case of the professional who early in life is exalted into a social and material prosperity apparently of a highly enviable nature, but who in after years frequently finds himself less well off than if he had applied his muscles and brains otherwise.

We confess that we cannot prove by any evidence that the defeats referred to in our opening paragraph are due to any marked diminution in the general reverence for athletic distinction. At the same time, however, we must point to a lack of evidence that they have been caused by a falling-off in the physical energy of the nation. We have invented certain games, being a people fond of athletic amusement, and others have learnt to play them as well as, or better than, ourselves. Why should they not?

Other races have as much right to possess a supply of healthy young men and young women as ourselves and in some instances do more than we do to secure it. The cultivation of an extreme degree of skill in athletics by those best adapted to exercise it has a tendency to reduce the numbers of the players and to relegate inferior performers to the position of spectators, and even when games are generally played their importance may to some extent be overrated. Improved physical development in the mass of young men and women of all ranks of life who have ceased to be mere boys and girls is not likely to be induced by active exertion in pursuit of a ball on one afternoon of the week when other points necessary to health are neglected. What is known as "physical culture" obtains a good deal of attention from some and the regular performance of well-selected exercises coupled with moderation in food, drink, and tobacco, plenty of fresh air, and a sufficiency of sleep will develop the body without overtaxing it, and will maintain in good health those who would find it difficult to train on the river or to indulge in cricket or in football. Exercise, however, without the excitement of personal emulation or the display of any particular skill is apparently not attractive to the young Briton. Our Volunteer battalions enlist but a small percentage of our young men, who acquire as a rule no great smartness in their drill, although, no doubt, many work hard and derive considerable benefit from it. The organised performance of gymnastic exercises by large bodies of men of the working classes such as takes place in Switzerland and in some other European countries is a form of pastime unknown to us, and we have no compulsory military training to force physical exertion upon those unwilling to undergo it. If we add the Japanese to the Swiss we shall have mentioned two nations who have not contributed to our recent athletic defeats but who might teach us much in the way of developing our national resources of physical strength without waste of time upon that which has no practical utility. We may not be willing as a nation to learn lessons from these but at any rate they may suggest the direction in which our physical training should be guided.

Let us combat "slackness," whether mental or bodily, in our children by all means, in whatever rank they may be born. There are round-shouldered loafers among the boys who cheer their school fellows at Lords as well as among those who flock in tens of thousands to witness a league football match. If it be possible to stimulate these to develop their bodies by exercises suitable to the purpose let us do so, but we need not declare them to be worse than their predecessors in order to show that they are capable of better things. Let us also not forget that the development of their minds is of equal importance with that of their bodies, if they are to become useful citizens and the fathers of a useful progeny. Let us hesitate before we avow a belief that the supremacy of our countrymen in certain games which they have sedulously practised implies national physical pre-eminence. Still less let us encourage the devotion of the young to the cultivation of physical excellence to the detriment of their future lives as individuals and as members of the community.

Population and Progress.

MR. MONTAGUE CRACKANTHORPE, K.C., a highly esteemed member of the legal profession, who is also known outside its ranks by his occasional excursions into the domain of sociology, has lately made one of these excursions with much sound of trumpet. He has republished an article on "The Morality of Married Life," which he contributed to the *Fortnightly Review* 35 years ago, has appended to it two others from the same source but of recent date, and two which have not previously appeared, and has issued the whole as a volume under the title of "Population and Progress."[1] The leading idea of the book is that it is the duty of married people to place artificial limits to increase of population; and it is a curious evidence both of the sincerity of the author's beliefs and of their fixity that his essay of 35 years ago does not appear to have been modified in any important particular prior to its republication. There are probably few persons whose minds, with regard to any important social question, could have remained stationary for so long a period, or could even now be so little influenced by the teaching of contemporary events. "Why," he inquires, "is France, where, during the last fifty years, the population has only increased by four millions, *pacific as well as prosperous*, whilst Germany, where the population during the same period had increased by twenty-six millions, is in a condition of unrest?" This was written not 35 years but only six months ago, and is curiously illustrated by the events which have since occurred in the French wine districts.

Mr. CRACKANTHORPE is apparently convinced, not only that it is the duty of married people to limit the number of their offspring, but also that, if this duty were acknowledged and fulfilled by the better classes, their example would be followed by the proletariate. He does not appear to have bestowed a thought upon the physiology of the subject, upon the methods to be employed, or upon the possible influence of these methods upon the health either of parents or of children; but he republishes a letter addressed by him to the *Fortnightly Review* in 1872, in reply to questions consequent upon the appearance of his first article. In this letter he very briefly refers inquirers to "physiological laws first enunciated about thirty years ago, and since recast with greater exactness of limitation." He mentions as authorities the treatises of RACIBORSKI (1844) and others, and adds that "M. RACIBORSKI'S latest work (1868), while properly qualifying the absoluteness of his previous conclusions, does not lessen their practical value to the bulk of the community." It would appear from this that in 1872 Mr. CRACKANTHORPE supposed that sterility could be secured by limiting sexual access to the concluding days of the intermenstrual period, but in a note appended to the present re-issue he casts doubt upon the correctness of this belief. He therein quotes, without comment, a German sentence by Dr. AUGUST FOREL, written in 1905, to the effect that conception after intercourse at the period in question, although less probable than at other times, is not excluded, and that those who trust to the supposed rule may be

[1] Chapman and Hall, 1907.

much deceived (*schwer enttäuscht*). Mr. CRACKANTHORPE supplies no substitute and gives no farther information or guidance to his disciples. That they will indeed be liable to be much deceived is, we think, well within the probabilities of the case. If a healthy man and woman, of procreative ages, are living together *maritalement*, it is evident that the births of successive children can only be prevented by complete or partial abstinence from intercourse (the latter, according to Dr. FOREL, being but an imperfect precaution), or by the use of artificial methods for the prevention or premature termination of pregnancy; and it is time that Mr. CRACKANTHORPE, and others like him, who desire to bring about the end, should not only be explicit with regard to their choice of means, but should also be prepared for any indirect consequences which resort to these means may entail. It is possible, of course, that a husband and wife of a certain temperament may agree to practise abstinence; but the question is one which would seldom be discussed before marriage and which might easily lead, not only to grave unhappiness, but also to infidelity, in the event of subsequent disagreement with regard to it. The privileges of the husband, so far as the marriage bed is concerned, have perhaps never been questioned by any important authority; and the claims of the wife to payment of the conjugal debt, which have been explicitly upheld by many legislatures, notably by those of the Athenians and of the Jews, will also, we think, be upheld both by physiology and by the moral sense of the great majority of mankind. It is manifest that abstinence would destroy the apostolic antithesis between "to marry" and "to burn," by rendering it possible, or even customary, to do both; and we believe that the great majority of married folk would not materially limit the number of their children by any course short of complete abstinence. As for other devices, the procuring of abortion is both a criminal offence and a source of immediate danger to life, and gynæcologists can testify as to the likelihood of disease being set up by practices which aim, on the one hand, at stimulating a natural function into activity and, on the other, at preventing its physiological purposes from being attained.

Mr. CRACKANTHORPE is eloquent upon the neglected state of the children of the poor, upon the ghastly mortality which prevails among them, and upon the diseased and crippled conditions which too often afflict the survivors. All these evils are undeniable; but they arise not so much from the birth of children as from the environment in which they are left by the permitted ignorance of their parents and by the defective sanitary administration of the State. Among children, as among all young animals, there must be a certain proportion of weakly individuals, not well calculated to survive, and the mortality of the first year of life must always be in excess of that of later periods, when the dangers besetting infancy have been escaped. But the excessive early mortality, which is justly regarded as a matter of national reproach, is largely an urban phenomenon, consequent upon remediable external conditions. During the ten years 1891–1900 the infantile mortality of England and Wales was 153 per 1000; but it ranged from 102 in Wiltshire and Dorsetshire to 160 in London and 179 in Lancashire; while out of the 153 for the whole country 44 deaths per 1000 were due to "wasting diseases" and 38 per 1000 of these occurred within three months of birth, while nearly half of them were attributed to debility or prematurity, the children possessing too feeble a vitality for the maintenance of an independent existence. It is well known that of children born prematurely between the end of the sixth and the middle of the ninth month more than two-thirds die before they are brought into the world, and less than one-fifth of the rest survive longer than a month. Moreover, in considering the effect of urban surroundings, it is well to remember that less than 60 years have elapsed since SIMON wrote of the City of London that "in houses containing all the sanitary evils which I have enumerated—undrained, and waterless, and unventilated—there are swarm of men and women who have yet to learn that human beings should dwell differently from cattle; swarms to whom personal cleanliness is utterly unknown; swarms by whom decency in their social relations is quite unconceived; women suffering travail in the midst of the males and females of three several families of fellow-lodgers in a single room; and, generally, people who are suffered to habituate themselves to the uttermost depths of physical obscenity and degradation." It is true that great changes for the better have since been wrought; but the effects of the conditions described by SIMON must endure much longer than the conditions themselves, and many generations must pass away before large sections of our urban populations can possess adequate conceptions of the requirements of health and decency. If Mr. CRACKANTHORPE were to carry his survey of Germany a little beyond the "unrest" which he attributes to a superabundant population, he might observe a people who are sufficiently educated to understand the value of scientific truth, industrial populations who are cleanly in their persons and apparel and comfortable and orderly in their homes, and parents who are successful in rearing and educating the children of whom he and those who think with him would deprive them, and who may often be the support and comfort of their declining years. It must not be forgotten that Mr. CRACKANTHORPE addresses his advice primarily to the more intelligent classes of the community, and that for them to follow it would be to diminish the number of their offspring both absolutely and relatively. Their comparative childlessness, like the celibacy of the clergy in the Middle Ages, would withdraw important intellectual and moral elements from the rising generation, and would afford increased room for a growth of tares by which the harvest of a better humanity would be choked. Among the English middle classes there has long been a sense of the value of the training which the conditions of a "large family" are commonly found to impart; and a very distinguished soldier, administrator, and public servant has lately told the readers of his "Memories" that he had the great advantage of growing up with ten elder brothers and sisters to teach him his place, and with eight younger to reconcile him to the inevitable supersession of seniors by their juniors. The lesson is, we think, at once a more moral and a more hopeful one than that which Mr. CRACKANTHORPE would inculcate.

Annotations.

"Ne quid nimis."

SOME INSTANCES OF UNSCIENTIFIC ADMINISTRATION.

AN article in our contemporary *Nature* for June 13th under the above heading by Professor Ronald Ross deserves to be read widely, if it be only to inform the public what large opportunities exist in India for the successful prosecution of research into the cause, nature, and cure of diseases which yearly exact a toll of many thousands of lives; how in the Army Medical Staff there are hundreds of able men with abundant leisure and eager for employment, who having been taught in our universities and medical schools, are familiar with the use of the microscope and thoroughly competent to understand its revelations; how funds are set aside and accessible for any reasonable demand; and yet how, with opportunities, men and money forthcoming, little encouragment has been given in the past to lines of investigation which, had they been promoted and the workers encouraged, might by this time have resulted in the prevention of scourges like plague and malaria. Professor Ross's article is a scathing indictment directed against the authorities, both civil and military, for their want of support in regard to those who were found self-sacrificing enough to pursue researches on the diseases of hot climates, which differ materially from those of a temperate zone, and to emulate such work as that of Lewis and Cunningham. For such men even leave of absence was grudgingly given or altogether refused. "The officers of the Indian Medical Service had and have leisure and opportunity unparalleled. A microscope, a few test-tubes, a word from the chief, a little approbation, some evidence that scientific work leads if successful to preferment, and the authorities could have had almost for nothing scores of enthusiastic and, I will expressly add," says Professor Ross, "capital workers for the great cause of medical science. But the pigeon-holed report and the official snub awaited us and we returned disappointed to our idleness." Professor Ross dwells upon, and criticises severely, what, as an officer of the Indian Medical Service, he terms the brainless character of much of the administration. He records that he once asked his chief if he would like him to investigate fevers during his abundant leisure. It will scarcely be credited that the answer given was that his "duty was *not* to investigate but to cure—as if we could do the second without the first," and Professor Ross's experience was only that of many others. He states that not only were leave and opportunities for study reluctantly given but that the heads of the medical department were remiss in obtaining the most recent scientific literature. Sprue, ankylostomiasis, beriberi, various forms of fever, guinea-worm, and other parasites received little official attention. He makes some surprising revelations in regard to malaria. About one-third of the admissions into hospital are due to this disease and it causes a mortality, directly and indirectly, possibly of some millions a year in India, while nothing does more to hamper military, engineering, and agricultural undertakings. Its cause was discovered by Laveran in 1880, enabling an accurate diagnosis to be made promptly. But with the exception of Vandyke Carter's confirmation in 1887 literally nothing of consequence was done on the subject in India for 15 years, though the Italians and others were publishing numerous researches. Not only did these momentous advances seem to be unknown to the authorities but they were almost entirely neglected in the hospitals and not even the necessary microscopes were provided—equivalent to a failure to supply surgeons with instruments. Professor Ross was himself asked as recently as 1905 by a rich native Rajah to investigate the malaria of his domain and his expenses were guaranteed, but the presiding Civil Service genius vetoed the suggestion. He instances, in addition to his own case, that of King who many years ago prepared a good vaccine and was rewarded by being deprived of his appointment for attempting to disseminate small-pox, whilst the same fate befell Haffkine in consequence of tetanus erroneously referred to his plague prophylactic; reference to this occurrence of tetanus at Mulkowal is made by Professor W. J. R. Simpson in the Croonian lecture which is published at p. 142 of our present issue. Professor Ross refers to the ignorance of the authorities in regard to the nature and means of prevention of the spread of plague in India, when introduced into India from Hong-Kong, which has caused the death of over five millions of people since 1896.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

Sir William S. Church presided at a meeting of the distribution committee of the Metropolitan Hospital Sunday Fund which was held at the Mansion House on July 12th. The committee reported that £43,000 were available for distribution, being the smallest amount raised in recent years. For the first time since 1899, in consequence of the death of Mr. George Herring, the Fund has been deprived of an annual contribution which varied from the sum of £10,000 to £12,000, but the committee believes that the Fund is likely to benefit by a portion at least of the interest of the residue of Mr. Herring's estate. One regrettable feature of this year's collection is the considerable decrease in the offertories at some of the West-End churches. This, of course, clearly points to the growing custom among the well-to-do of spending the week-end in the country, a custom which will certainly not diminish with the increasing facilities for quick locomotion. Year by year we have urged those who spend their Sundays out of London to remember the needs of the hospitals none the less and to send their contributions in their absence, but this year, at any rate, our words seem to have fallen upon deaf ears.

STREET ACCIDENTS AND FIRST AID.

THE report of the Chapter General of the Grand Priory of the Order of St. John of Jerusalem in England for the year 1906 is a document of some interest, especially that portion of it which deals with the work of the St. John Ambulance Association. The central executive committee of this department states with regard to the number of accidents which happen in the streets of our large cities from time to time that in Manchester during the year 1906 3000 cases of sudden illness or accidents occurred in the streets and received prompt aid at the hands of the police. The average number of persons requiring first aid in the streets of Manchester has exceeded 2000 a year for many years past. In the City of London the number of accidents caused by horses and vehicles numbered 1330, involving six deaths. In the City police force the possession of a St. John certificate is a *sine quâ non* for membership and the case is reported of a constable who, fracturing his shin as the result of a fall, called upon the bystanders for handkerchiefs and wood, rendered first aid to himself, and was told by the hospital surgeon who afterwards attended to him that he had probably prevented a compound fracture. Consequent on the enormous quantity of traffic in the metropolitan area the number of street accidents appears to be steadily increasing. As reported by the metropolitan police these accidents amounted in 1891 to 4766; in 1901 they reached 7995, an increase of a little over 42 per cent. in ten years. In 1903 they amounted to 10,363, an increase of over 25 per cent.

in two years and of the 10,363, 154 were fatal. These and other figures quoted in the report show that a real necessity exists for an extension and improvement in our street ambulance service. We have on many occasions called attention to the matter and the reports of meetings of the Metropolitan Street Ambulance Association, of which Mr. Reginald Harrison is the president, which have appeared in our columns, together with the correspondence relating to the subject, show that the medical profession has done its best to awaken the public interest in a matter which deeply concerns them. In a letter which Mr. Harrison addressed to us as recently as June 29th he pointed out—

> (1) That the present position for dealing with such accidents and casualties in the streets is admitted to be inadequate and obsolete and that an unnecessary amount of mortality and physical suffering is thereby permitted to continue; (2) that though the better organisation of existing ambulance provision may to some extent improve matters a more extended system of first aid by the police or others who may undertake this duty, as well as improvements in signalling and in appliances and forms of ambulance are absolutely and urgently needed; (3) that no service for London can be regarded as efficient that does not include a proportion of rapid transit ambulances, motor or horse, capable of communicating immediately with accidents when authoritatively requisitioned by telephone or otherwise and containing, if required, necessaries for first aid attendance; in fact, in special circumstances and urgency reversing the order of things and bringing the hospital, so to speak, to the patient in the street.

The rapidly increasing traffic in our streets, especially motor traffic, makes it imperative that action should be taken with as little delay as possible. A Home Office inquiry relative to ambulances is now proceeding and every possible support should be given to the Metropolitan Street Ambulance Association in its endeavours to promote a more efficient service for the many thousands of accidents that occur annually in our streets. The secretary of this association is Dr. Arthur W. James, 69, Gloucester-terrace, Hyde Park, London, W.

THE "SIMPLIFIED EXPERT ALIENIST."

IN the second number of Vol. VIII. of the *Journal of Mental Pathology* (New York) one of the editorial articles deals with the partisan expert, an individual not uncommonly found in important murder trials. In this article we read that "the business of the simplified expert alienist" consists in simplifying the science of psychiatry. His definitions of mental derangements are strictly *sui generis* and cannot, therefore, be found in any of the writings of standard authors. "The field of activity of the 'simplified expert alienist' is in the court-room, where he may appear for the purpose of making it possible either for sane gentlemen murderers to escape the penalty of the law or for chronically insane gentlemen murderers to escape being landed in an asylum for insane criminals." The Penal Code (Section 20) for the State of New York reads as follows: "An act done by a person who is an idiot, imbecile, lunatic, or insane is not a crime. A person cannot be tried, sentenced to any punishment, or punished for a crime when he is in a state of idiocy, imbecility, lunacy, or insanity so as to be incapable of understanding the proceedings or making his defence." Now the "simplified expert alienist" so simplifies the nomenclature of mental diseases that such terms as idiocy, imbecility, paranoia, and other specific terms indicative of incurable mental diseases will be non-existent to him and when hard-pressed by overwhelming evidence for an opinion he commonly describes the insane gentleman's mental state prior to the murder somewhat as follows: "not perfectly healthy condition but not insane"; "unstable mentally but not insane"; "not lasting mental state but not insane"; "pathological suspect but not insane"; "on border line of insane instability and normal state but not insane." "All these and similar definitions may apply to the gentleman murderer's mental status *before* the commission of the murder. At the very moment of the murder the insane gentleman murderer may be found, however, to be suffering from a 'brain storm' or a 'brain explosion' and is absolutely insane. But *after* the commission of the crime and at the time of the trial for murder the insane gentleman murderer is perfectly sane." The article concludes with the following remark: "We earnestly hope, therefore, for the sake of equity, public safety, and common decency that the present 'rule of evidence' may be changed in the near future and so perfected as to make it an act of justice to the public on the part of the people's attorney to kick out of court the 'simplified expert alienist' if he happens to appear therein in the rôle we have described and neatly to kick him into jail if he happens to deliberately attempt to aid and abet crime, criminality, and criminal acts."

FORCIBLE REDUCTION OF FRACTURE-DISLOCATION OF THE NECK.

A NUMBER of cases has now been recorded of recovery from fracture-dislocation of the cervical vertebræ but very few cases have been published of complete recovery after operation. In the *Journal of the American Medical Association* of June 8th Dr. A. A. Law has reported the following case. A boy, aged 16 years, was looking over the gate of a freight elevator with his chin over the edge. The elevator descended striking him on the back of the head. At the same time the gate ascended striking him in the region of the larynx. He was taken to hospital where Dr. Law saw him 20 minutes later. He was unconscious and rigid and made violent incoördinate movements. The limbs were markedly flexed and there were complete anæsthesia, exaggerated knee-jerks, ankle clonus, and paralysis of the sphincters. Respiration was diaphragmatic, shallow, and slow, and he was cyanotic. The pulse was 120 and thready. The head was forced back out of position and there was a dimple at the back of the neck over the spine of the third cervical vertebra. Palpation of the pharynx showed prominence of the body of the second cervical vertebra, which was dislocated forwards. The boy appeared to be *in extremis* and Dr. Law advised his parents that he should be given the chance of operation but would probably die on the table. He was placed on his back on the table, his head and shoulders extending over the edge. No anæsthetic was administered. While he was held by assistants by the shoulders and body Dr. Law, with one hand under his occiput and the other under his chin, made powerful traction on the head with no other result than to twice produce dislocation of the lower jaw which had to be reduced. Then with a folded towel over the teeth to protect his hand he made traction from this point and from the occiput. Meanwhile an assistant with his fingers in the pharynx pressed out the vertebræ. This was also unsuccessful. Finally, an assistant gripped Dr. Law's wrists and pulled with him. With all their strength they first extended and then flexed the head on the neck sharply and the vertebræ slipped into place. The symptoms instantaneously improved, showing that pressure on the cord had been relieved. The pulse and respiration became quieter, the incoördinate movements ceased, and sensibility returned. The patient was put to bed with the head of the bed raised and a 10 pounds extension weight on the head. Bromide of potassium was administered. Catheterism was performed for the first 24 hours, then urine was passed involuntarily. The temperature for the first ten days ranged from 100° to 102° F., while the pulse was 120. He remained unconscious for 12 days and was fed per rectum for four days. On the seventh day, extension being made on the head, the body was slipped over the edge of the bed and was held by assistants while Dr. Law applied a heavy plaster cast from the hips to the top of the head enveloping the patient completely save his face from the eyebrows to the mouth. This absolutely immobilised the head and shoulders. When the plaster set the extension was removed. He

was left in the cast for four weeks. When he regained consciousness, on the twelfth day, the temperature was normal but the pulse still ranged from 100 to 110. When the cast was removed recovery was complete. He was allowed to go about with a simple collar of plaster, more for the purpose of reminding him to be careful than for anything else. A skiagram taken seven weeks after the injury showed that the second intervertebral space, where the dislocation had occurred, was a little more prominent than normal, but the vertebræ were in perfect position.

NEAT CLOTHES AND CLEAN BODIES.

THE recent honour bestowed upon one who has devoted so many years of unselfish service to those "who have none to help them" was an act of grace which all will approve but we appeal for the elimination of the word "ragged" from the official vocabulary. To speak plainly, we as a nation should be advanced beyond ragged clothes and dirty bodies, yet unfortunately this is a consummation which every thinking observer must admit we have not reached. It is true that, speaking generally, business men, clerks, shop attendants, and others of this class are well dressed and present, as a rule, a neat and attractive appearance which gains approval, but the condition of the working class is nearly always deplorable, and what a contrast does the clever artisan present with his white apron and sleeves rolled up, hard at work: he seems to be the very embodiment of labour triumphant. In the street, however, the same man appears in disreputable garments, an old hat, a seedy coat, completely reversing the spectacle of a neat and tidily clothed person as he is when engaged at his work. Surely there must be something wrong here; an ill-dressed man is depressed, an ill-dressed woman demoralised. Employers might do much to encourage their workers to leave their occupations clean and tidy and every facility should be afforded to them in the shape of bath- and dressing-rooms of doing so. Quite good clothing can be had cheaply enough and so can soap and water, and these are elements which a man should use to make himself a pleasure to himself and, need it be added, to others also.

THE DEATH OF SIR WILLIAM PERKIN, F.R.S.

THE founder of the great coal-tar colour industry has not lived long to enjoy the distinctions and honours showered upon him just a year ago, while only last month he received the honorary degree of D.C.L. at Oxford. Sir William Henry Perkin died at his residence at Sudbury, Harrow, on Sunday night, July 14th, from double pneumonia after an illness of four days. Chemical industry and pure chemistry have thus been suddenly deprived of a great leader and an earnest and successful inquirer into the nature of things. Medicine, too, will recognise that it has lost one who did eminent service in its cause, for it is abundantly evident that the discovery of coal-tar dyes has placed in the hands of the biologist and chemist a valuable adjuvant, our knowledge of the great biological processes being extended almost every day as the suitable stain reveals the nature of formation or the arrangement of structure. William Perkin's bent was unquestionably chemistry and he started the practical study of the science at a very early age. How rapidly he gained his knowledge may be seen from the fact that at the age of 17 years he was acting as a private assistant to the great Professor Hofmann in his research laboratory. The world knows now how his great discovery was made. Impressed with the importance of being able to prepare quinine artificially he attempted to make the basic substance aniline his starting-point and accordingly submitted that body to a process of oxidation. The result was the formation of an intense purple colouring matter afterwards known as aniline purple or mauve. Before he was 20 years of age Perkin, with the assistance of his father, proceeded to construct works not far from the house in which he recently died, and there to manufacture the dye on some considerable scale. Later a more remunerative process followed Perkin's discovery of a method for manufacturing alizarin (artificial madder) in bulk. He also turned his attention to artificial indigo and to the synthetic production of perfumes. In pure science his *magnum opus* was the remarkable series of papers read before the Chemical Society on magnetic rotation, the application of which has done much to elucidate the composition of compounds and their molecular weights. Perkin was born in 1838, was twice married, and leaves a family of four sons and three daughters. Two of the former are well-known chemists.

VINCENT'S ANGINA.

SINCE Vincent in 1896 described the peculiar form of ulcerative sore-throat which is now usually called after him, a number of cases of that condition have been recorded and several interesting papers have appeared. In this country the disease has been recognised and carefully worked out by Dr. H. W. Bruce[1] who describes two types—a mild diphtheroid form which is generally superficial, limited in extent and unilateral, and is not associated with swelling or injection of the fauces, and an ulcero-membranous form in which the condition spreads rapidly and is much deeper in its extent. There is a slow separation of the slough in from ten to 14 days with extensive destruction of the tonsil or uvula; in some cases glandular enlargement occurs but never goes on to suppuration. The condition may be so severe as to cause septic pneumonia and death, while, according to Mayer, endocarditis is an occasional sequela. The lesion differs from that of diphtheria, which it may resemble very closely, in that there is no formation of a false membrane as in that disease but a necrosis of the superficial layers in the part affected with the formation of an ulcer. As described by Vincent, a fusiform bacillus and a spirillum are found in this condition; the former has been regarded by Sir A. E. Wright[2] as having affinities with a trypanosome, while the latter is considered by many pathologists to be a normal inhabitant of the buccal cavity and to become pathogenic only in the presence of other micro-organisms. Dr. J. Douglas Blackwood[3] records seven cases of this condition observed in the Children's Department of the Philadelphia Hospital during the summer of 1904. Smears were made from the throats of 21 children attending the department, of which nine gave positive results. Of these nine, seven were of the superficial or mild diphtheroid type of Bruce; the other two were healthy children, in one of whom both organisms were present, in the other the bacillus fusiformis only. The actual cases of the disease began with a sudden rise of temperature, reaching 103° F. in one instance. The course of the fever was irregular and in all cases it fell by lysis. There were few constitutional symptoms, except in one case, in which the child was comatose for the first four days of the attack. The parts affected in these cases were the lips, the tongue, the gums, the cheeks, the tonsils, or the pharynx, but in none of them was there marked destruction of tissue; nor was there glandular enlargement, except that which had been present before the onset of the disease. In all of them the fusiform bacilli were present in greater numbers than the spirilla. The duration of the attack varied from four to 22 days. An interesting case of the same condition, in which the ulceration was confined to the larynx, is recorded by Dr. F.

[1] THE LANCET, July 16th, 1904, p. 135.
[2] THE LANCET, July 9th, 1904, p. 73.
[3] Proceedings of the Pathological Society of Philadelphia, vol. ix., 1906.

Reiche of Hamburg,[4] who states that a primary laryngeal case had not been recorded previously. The patient was a painter, aged 39 years, with a condition in the larynx very similar to that seen in the pharynx in Vincent's angina. The mucous membrane presented a thick, yellow, membranous infiltration in certain parts, but with very little irritation of the tissues around and with no enlargement of the lymphatic glands. The process spread for a few days and after separation of the pseudo-membrane a superficial ulceration of the mucous membrane was left which healed completely. There were not at any time any urgent symptoms although the vocal cords were involved, the chief clinical features being hoarseness and cough with abundant thin, watery expectoration. Fever was at first moderate; on one occasion the temperature rose to 39·8° C., but it fell to normal and remained there before the condition had ceased to spread. No diphtheria bacilli were discoverable either in the pseudo-membrane or in the expectoration, while the fusiform bacillus was present in great numbers. The spirilla usually found in association with it were not discovered in this case. Other interesting features were the protracted course of the disease in this instance and the occurrence of severe complications. At the height of the disease nephritis developed and later peripheral neuritis supervened, with paralysis of accommodation, weakness of the lower extremities, and some laryngeal paresis. The case is noteworthy not only because of the rarity of primary laryngeal implication but also because of the absence of spirilla and the marked similarity in the sequelæ to those of diphtheria, for which it would doubtless have been mistaken but for the careful bacteriological investigation.

A NEW ROMAN OCULIST SEAL.

TWO Roman oculist seals have been discovered during 1905 and 1906 which bear somewhat fuller inscriptions than usual and which deserve notice in our columns. The first was found at Este, in Italy, and will not now be further referred to here because the discussion as to the correct translation of part of its text is still proceeding. The second seal comes from Reimersheim, near Mulhouse, and has been edited by Commandant Espérandieu who numbers it as 222 of the known seals,[1] the series of signets given by him in the Berlin Corpus of them in 1905 having terminated with number 219. The seal bears the name of two oculists, probably a proof of medical partnership, of which several instances have occurred previously. For instance, a seal preserved at Gotha belonged to T. C. Apollinaris and to Q. C. Quintilianus. The names upon the newly found specimen are Caius Julius Potentinus and Aurelius Amphio. Both names are new and nothing is known about their owners. The inscription graven respecting their favourite collyria runs as follows: "C. I. Potentini. Collyrium crocodem. Collyrium Stactum crocodes ad claritatem. Diamisus ad veteres cicatrices. Aureli Amphio Penicille ex ovo." Unfortunately this text does not afford any new scientific information, for all these collyria and terms for maladies have been exemplified upon signets found earlier. Crocodes was saffron and the herb is undoubtedly indicated by many, if not all, of the occurrences of the word upon oculist seals. But a French medical author has stated that often the saffron employed by the Roman oculist was not the vegetable product but what was entitled "Saffron of Mars," a name derived from its colour, and that it was really a hydrated oxide of iron. As metallic ingredients were especially popular with the seal owners this suggestion is possible. But, on the other hand, they certainly used the vegetable saffron as a remedy. Galen in his Περὶ συνθέσεως enumerates various collyria containing true saffron. The finest specimens of the plant for medical purposes, Celsus and Pliny assert, came from Sicily, though Dioscorides states that Sicilian saffron was not so powerful as that grown elsewhere. The great use made of it for medical purposes is proved by his devoting a special chapter to it. Marcellus and Aetius also allude to its use by oculists. Upon oculist seals it is stated to be efficacious against many forms of disease of the eyes, such as trachoma. Upon a seal found at Ratisbon it is styled *Crocodes regium tetrapharmacum*. It is mixed in collyria with misy, copper, and Judean balm. In this inscription it is united with stactum, or oil of myrrh, an ingredient presented upon more than 50 oculist seals. Here it is advised "ad claritatem," merely meaning to produce clearness of vision, just as some marvellous collyrium of green colour, styled Chloron, was by a certain G. Tittius Balbinus said to be useful "ad expurgationem et repletionem." The third collyrium, diamisus, is almost certainly sulphate of iron and the cicatrices which it cured were diseases of the cornea, but in some cases where the words "ad cicatrices" alone are used they may have been intended to promise that the ingredients would tend to cicatrise ulcerations and so to ease or to cure them, for Pliny vouches for a certain eye powder as producing such results. Penicillum was a species of fine sponge. Pliny in his "Natural History" speaks of it. It is nearly always on the seals qualified by the epithet "lene," or gentle. The mixing with the white of an egg has previously been found upon a seal associated with "penicillum lene," and it is advised to be used with incense, a decoction of rose leaves and nard, upon the oculist seals.

[4] Münchener Medicinische Wochenschrift, 1907, No. 17.

[1] Bulletin de la Société Nationale des Antiquaires de France, 1906, p. 148.

PNEUMATURIA.

THOUGH pneumaturia has been described so long ago as 1671 by Raciborsky its literature is still scanty and its investigation far from complete. In the *Boston Medical and Surgical Journal* of June 13th Dr. A. E. Taussig reported the following case. A coloured woman, aged 34 years, had car oma of the cervix uteri which involved the vagina and left arametrium. Panhysterectomy and removal of the parametrial connective tissue were performed. As usual after such operations she was unable to micturate and catheterisation was necessary. The urine was normal. On the sixth day after operation it became cloudy and on the following day when the catheter was introduced the urine was expelled with bubbles of odourless gas. First, a varying quantity of turbid urine was expelled, then puffs of gas interrupted its flow, and finally a quantity of frothy urine was passed. The pneumaturia continued for ten days, during the last few of which the power of micturition was regained. Under boric acid irrigation the cystitis gradually ceased, but two months later it recurred and continued until death from recurrence of the cancer. At the necropsy the bladder showed only the characters of chronic cystitis and no communication with the rectum was found. The urine during the period of pneumaturia was faintly acid. It contained pus but no sugar. Cultures of the urine on agar, aerobic and anaerobic, showed only one microbe, a thick bacillus with rounded ends, often so short as to resemble a micrococcus. It was slightly motile, produced no spores, and did not retain Gram's stain. It grew readily on all ordinary media. In neutral red glucose agar and in nutrient agar and gelatine gas was produced. But attempts to imitate the intravesical formation of gas by inoculating normal urine or the patient's urine failed—an experience which is similar to that of other observers. Attempts to analyse the gas were only partly successful; the presence of carbonic acid was ascertained. There are two forms of pneumaturia. One is due to the passage of gas from the rectum into the bladder

by a fistula or, more usually, to the passage of fæcal matter containing microbes which cause intravesical putrefaction and formation of gas. The other and more important form is due to fermentation of the urine. This form may be divided into two varieties, diabetic and non-diabetic. In the former glucose is fermented by yeast or, more usually, the colon bacillus with the production of carbon dioxide. In the non-diabetic variety the albuminous urine of cystitis is fermented with production of carbon monoxide and hydrogen. It is this form which is of chief clinical and bacteriological interest to-day. Only eight cases have been satisfactorily investigated from the bacteriological standpoint. In three cases the organism was the bacillus lactis aerogenes, a microbe closely resembling the bacilli of the colon group but characterised by the production of slime, capsule formation, and production of gas on all ordinary culture media. Four cases were due to the colon bacillus or a closely related organism. The organism present in Dr. Taussig's case belonged to the group of colon bacilli, but it resembled the bacillus lactis aerogenes in that the first few generations on artificial media produced gas. Some bacteriologists hold that this organism is closely related to the colon bacillus. The albuminuria of ordinary cystitis and the ordinary colon bacillus do not appear to be sufficient for the production of pneumaturia. Otherwise the condition would be much more frequent than it is. The urine must contain some unusual albuminous constituent or some special strain of colon bacillus. In most of the cases of pneumaturia there was some interference with micturition. Treatment must be directed against the underlying diabetes or cystitis.

THE TENURE OF OFFICE OF MEDICAL OFFICERS OF HEALTH.

WE drew attention a few weeks ago to the urgent necessity for placing medical officers of health in the provinces upon the same terms as regards their appointments as their metropolitan and Scottish colleagues. We suggested to the President of the Local Government Board that he should at any rate make the appointments non-lapsing of medical officers of health of combined districts who devote their whole time to their duties. We have soon been provided with an illustration of the way in which a district council may take advantage of the present system of short term appointments and perpetrate an injustice not only to an individual medical officer of health but to the public health service generally. Mr. Charles Wills has been for 28 years medical officer of health to several districts in Nottinghamshire. He has been re-elected by each sanitary authority for periods of one year and when his re-election was recently considered by the Southwell rural district council a motion was carried by a majority of two that his salary should be reduced from £214 per annum to £107. The only apparent reason for this extraordinary action of the council appears to be that the Local Government Board, after perusing Mr. Wills's annual reports, has recommended the appointment of an additional sanitary inspector. This new appointment costs the district £100 a year and it appears quite just to the majority of the members of the district council that Mr. Wills should be made to pay for doing precisely what he is required to do by the Orders of the Local Government Board—namely, to report upon the sanitary circumstances of the district. It is difficult to believe that the central authority will sanction the proposal of the Southwell council. The salary which Mr. Wills has hitherto been receiving is by no means exorbitant considering the size of the district, 177,484 acres and its population of 19,000 persons. The members of the council appear to have very little idea of what would be adequate remuneration for the work which has to be done by the medical officer of health, for at the last meeting of the council one gentleman made the extraordinary statement that £214 was a fair figure for a medical man to give his whole time in one district. If this view is held to any great extent by members of other sanitary authorities throughout the country it is not surprising that rural district councils should have received such sweeping condemnation as that to be found in the report of Sir John Dickson-Poynder's select committee upon the housing of the working classes.

ROYAL SOCIETY OF MEDICINE.

WE are informed that proposal forms for candidates for election either as Fellows or as Members of one or more of the society's sections are now ready and can be obtained upon application to the secretary, 20, Hanover-square, London, W. The library of the Royal Society of Medicine will be closed on Thursday, August 1st, and will probably remain closed until the end of September in order to allow time for the considerable alterations that will have to be made in view of the increased use of the library which is anticipated.

THE INCOME TAX REDUCTION LEAGUE.

WE have received a circular letter from the general committee of the recently formed Income Tax Reduction League with a request to give publicity to its purposes. Since the medical profession as a body feel the burden of the tax especially heavily, we have pleasure in stating the objects of this league and we wish it success in their attainment. The committee's letter states that:

> The Income Tax Reduction League has been formed because we feel that the time has arrived when this tax should no longer be maintained at a war rate. The income tax is essentially an emergency tax and we consider the prolonged maintenance of the tax at a war rate to be unsafe from a national point of view, unwise from the revenue point of view, injurious to our trade and industries, and unjust to a large body of the citizens of this country.
>
> The league is a non-party body. Its objects are to unite the forces of income tax payers of all parties and of either sex in one strong association whose efforts to effect reform in the income tax will not lightly be ignored by any Government. The specific purposes of the league are: (1) to organise income tax payers for purposes of self-defence: (2) to impress upon our countrymen the necessity for a substantial reduction of the rate; and (3) the restriction of income tax to profits actually received by shareholders or by individual traders and to exempt depreciation funds from the operation of the tax.

Subscriptions are invited from sympathisers, which will be received by the honorary treasurer of the league, care of Messrs. Robarts, Lubbock, and Co., Lombard-street, London, E.C., or by the honorary secretary, 2, Cloisters, Temple, London, E.C. The president is Lord Avebury and Mr. Hallett Fry is acting honorary secretary and treasurer.

THE TREATMENT OF SUPPURATIVE PYELITIS BY LAVAGE OF THE RENAL PELVIS.

WHEN a purulent pyelitis does not yield to internal medication, if such a happy result ever follows medicinal treatment, there are only two courses open to the surgeon: he may either open the renal pelvis by an incision in the loin and then treat it by local applications, or he may wash out the pelvis of the kidney by means of a ureteral catheter. When possible the latter is the better method, but ureteral catheterisation is by no means easy. Kelly in 1894 was the first to show that it was possible to wash out the renal pelvis by a catheter passed into the ureter, but all his work was done in women, and catheterisation in the male is much less simple. Dr. Winfield Ayres of New York has obtained the best results by employing a direct-view catheterising cystoscope, which he devised, and in the May number of the *International Journal of Surgery* he describes six cases in which he has used this method. The results varied with the condition present; when no real kidney substance was left only slight improvement occurred, but when the suppurative process had only affected the kidney itself to a small extent rapid improvement or recovery followed. In most of the cases the gonococcus was present

and it seems probable that it is the commonest organism giving rise to pyelitis. The solutions employed for washing out the pelvis were nitrate of silver (1 in 8000 and 1 in 5000) and argyrol. Of the six cases two were failures and nephrectomy was the only possible method of cure; the four other cases were satisfactory, three recovering completely. In one case both pelves were affected but the ureteral catheter had to be passed only four times and perfect recovery followed. It is certain that this patient suffered much less discomfort than if the pelvis had been opened by a lumbar incision. In this case no gonococci were found and the more rapid recovery may possibly be connected with this fact.

EPIDEMIC CEREBRO-SPINAL FEVER.

THE fact of the diminished prevalence of epidemic cerebro-spinal fever seems now to be well established. In Scotland during the week ended July 13th there were 6 deaths from this cause registered in Glasgow, 4 in Edinburgh, 2 in Leith, 1 in Dundee, and 1 in Paisley. In Glasgow the weekly report issued on July 12th showed that there were at that time 58 cases under treatment. In Belfast during the week ended July 6th there were 10 deaths registered as being due to this cause.

AN INTERESTING CASE OF GASEOUS EMBOLISM.

A REMARKABLY accurate and complete translation of an interesting case of gaseous embolism reported by Lieutenant N. Low in the *Journal of the Royal Army Medical Corps* for April last appears in the *Archives de Médecine Navale* for June. The name of the translator is not supplied but he is to be congratulated on his admirable rendering of a language differing in so many respects from his own vernacular. Without being given word for word the precise meaning of the original is conveyed in elegant and idiomatic French. We have been able to detect one slight mistake only. Referring to the body weight lost by the patient the translator in a note says that a stone is equal to 3·628 kilogrammes, and adds that it is the unity employed in weighing meat. It is no wonder that he was led into error. The number of different "stones" used in this country must be most perplexing to a foreigner accustomed to the simplicity of the metric system. It is true that the only legal weight bearing the name is the British imperial stone of 14 pounds, but in various parts of the kingdom stones of other values are in use, as a stone of 24 pounds for wool, 22 pounds for hay, 16 pounds for cheese, 32 pounds for hemp, 5 pounds for glass, 8 pounds for butcher's meat, and in Scotland 7 pounds for oatmeal.

THE DEATH OF DR. DUPRÉ.

ANALYTICAL chemistry loses one of the best of its exponents in the death of Dr. August Dupré, which took place on Monday, July 15th, at Sutton, Surrey. His name came prominently before the public in connexion with the Fenian outrages in the early "eighties" when, as chemical adviser to the Explosives Department of the Home Office, he investigated the explosives and infernal machines employed in the Fenian propaganda. He was also engaged on some important medico-legal cases and was associated with Dr. (now Sir) Thomas Stevenson in the task of detecting poisons which had been criminally administered. Dr. Dupré was an authority on water analysis and did much to render exact the analytical processes concerned. Perhaps his most important investigation in this connexion was that relating to the amount and estimation of oxygen dissolved in waters. He presented a report on this subject to the Medical Department of the Local Government Board in 1884, and one interesting conclusion was that in the vast majority of cases the consumption of oxygen from the dissolved air of a natural water is due to growing organisms and that in the complete absence of such organisms little or no oxygen would be consumed. Dr. Dupré added considerably also to our knowledge of the chemistry of wines and spirits and was the first to propose a rational method for the estimation of the higher alcohols, or, as they were then called, fusel oils, in spirits. He was at one time public analyst for Westminster and was lecturer on chemistry for over 30 years at the Westminster Hospital Medical School.

THE CALCUTTA CORPORATION AND PUBLIC HEALTH.

THE Calcutta Corporation is engaged in organising its health department, which is not a new departure for seldom does a year pass without some scheme being broached. It is to be hoped that the one now adopted will prove satisfactory, for continual change, or the threat of change, does not conduce to efficiency or to enthusiasm on the part of the department concerned; nor does too frequent criticism of a hostile character help a department to do its best. Praise, even when it is seldom and when well deserved, has often a more powerful effect. Good pay and fixity of tenure, two important conditions which the municipality is rather inclined to ignore, will always secure good men, and with these granted it is pretty certain that the most serious difficulties confronting the health administration would disappear. Into the merits of this new organisation scheme we cannot enter, because from the papers before us it is not very clear whether it is merely an amalgamation of the hitherto separate plague department with the health department under the health officer or whether it is the abolition of the plague department and the transference of these duties to the health department. If it is the latter we think that the corporation is making a great mistake. The city of Calcutta is not only the capital of India but it is also the great commercial centre of that part of India. It is of the highest importance, therefore, that plague should be kept under control, for if this disease by any relaxation of effort should gain a further hold on Calcutta and become epidemic the loss in lives and in money would be great. The amount of money expended annually in maintaining a plague department is microscopic compared to the losses which would be incurred in a week's time in consequence of an epidemic in such a prosperous city as Calcutta.

THE SECOND INTERNATIONAL CONGRESS ON SCHOOL HYGIENE.

THE Second International Congress on School Hygiene will be held at the University of London from August 5th to 10th under the presidency of Sir Lauder Brunton. We have already expressed the hope that the results of its labours will be a more general recognition on the part of the public of the fact that the mental and physical condition of children must be taken into consideration in connexion with any scheme of primary education. Science has already recognised the folly of educating children at the expense of their bodily and mental health, but a strong public opinion is needed before any legislation can be expected. The public are, we believe, beginning to see the necessity for some alteration of the present system of education and the Government has displayed great interest in the matter, even though it is possible to suggest that not much has been done as yet. On July 15th, in answer to a series of questions in the House of Commons, Mr. McKenna said that the Board of Education was greatly interested in the approaching Congress on School Hygiene and had intimated its intention of sending three of its officers to attend the Congress. He hoped, he said, to derive much information from its proceedings and he had done his best to facilitate its deliberations

by arranging for special investigations and reports to be prepared in elucidation of some important matters which would come under discussion. The Foreign Office had already forwarded special invitations to foreign Governments and a considerable number of delegates had signified their intention of attending the Congress. In addition to the accommodation which the University of London was providing for the Congress he (Mr. McKenna) was also placing certain rooms at South Kensington at its disposal. Sir Lauder Brunton has not a high opinion of the practical sympathy of the Board of Education, which he describes in a letter to the *Times* as being limited to a small donation in money—this being in direct controversion of the statements of the Minister of Education. We hope that Sir Lauder Brunton is wrong in his estimate of the capacities both for work and sympathy of the Board of Education.

THE Department of Public Health of Queensland in a bulletin dated June 1st states that for the week ending on that date there were 3 new cases of plague notified after an interval of 43 clear days since the last case notified on May 27th. The three cases were as follows: Case 31, a schoolboy, aged 12 years, notified only after death; Case 32, a male, aged 16 years, attacked on May 24th; and Case 33, a male, aged 17 years, attacked on May 27th. The two latter cases were both employed in a hotel. Another case, that of a girl, aged 12 years, was reported from Ipswich, near Brisbane, on May 23rd. Port Douglas is now considered as free from plague. As regards the Cape Colony, the medical officer of health of the colony states that for the week ended June 22nd 1 case, that of a European female, was discovered at King William's Town. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on July 12th states that for the week ending July 10th there occurred 1 case of plague and 1 death from the disease.

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 18th, 1829.

THE PHARMACIE CENTRALE OF PARIS.

THE *Pharmacie Centrale* is no doubt one of the "most beneficial institutions under the superintendence of the Administration Generale." Its object is to supply all civil hospitals, lunatic asylums, prisons, poor-houses, and public charitable institutions of every description in Paris, as well as in the departments, with drugs and medicinal preparations. It is obvious that this manner of proceeding is both simple and economical, and best prevents all adulterations and impositions with respect to the preparing and selling of medicines. Every month the Parisian hospitals send a report to the Pharmacie Centrale of their present supply; the provincial institutions send their reports every other month. The receipts which are transmitted by the different institutions to the "Pharmacie Centrale," serve to check its annual accounts with the Administration Generale. In the year 1822, the amount of its whole expenses was not more than 423,222 francs, which, considering the extent of its operations, will appear very trifling. The institution possesses a large building, with the necessary warehouses, laboratories, &c., and an excellent apothecary's shop, which serves only as a model, no medicines being sold there.

The "Boulangerie" and "Cave Generale," are institutions similar to the Pharmacie Centrale; the latter for the supply of wine, the expense of which in 1822, amounted to 573,532 francs. The "Boulangerie" requires annually 15,000 sacks of meal. During the last 15 years, the amount of its supply was 15,500,000 francs. In 1822, 2,820,064 lbs. of white bread and 4,223,030 lbs. of rye bread were consumed.

REPORT OF AN INQUIRY AS TO THE EXISTING SUPPLY AND THE PRESENT RATE OF REMUNERATION OF MIDWIVES IN ENGLAND AND WALES.

THE Association for Promoting the Training and Supply of Midwives appointed an advisory committee last year (1906) to consider the whole question of the supply of midwives (especially in view of that part of the Midwives Act that will come into operation in 1910) and to collect the necessary information. The latter function was intrusted to a subcommittee, consisting of Mrs. Wallace Bruce, Dr. C. J. Cullingworth, Mr. A. G. R. Foulerton, Miss Gill, Miss Alice Gregory, Mr. T. Almond Hind (chairman),[1] Miss Lucy Robinson, Dr. E. C. Seaton, and Miss Wilson, with Mrs. E. V. Lucas as honorary secretary. The instruction to this subcommittee was to inquire in the first instance as to what evidence there is of a need for an increased supply of midwives—i.e., for a supply beyond such as is likely to be afforded by voluntary charitable effort and by private enterprise on the part of the trained midwives themselves. The subcommittee was asked to formulate its answer by tabulating the existing information as to (*a*) the number of midwives retiring; (*b*) the number or proportion of untrained midwives on the roll—i.e., of women admitted to the roll within the first two years after the passing of the Act, in virtue of their having been in *bonâ-fide* practice as midwives for the 12 months preceding the passing of the Act; (*c*) the average rate of payment of midwives in private practice, especially in rural districts, and the average number of cases which they attend annually; (*d*) the proportion of rural districts in which it would, and the proportion in which it would not, be possible for a midwife (under existing restrictions as to her following other occupations)[2] to earn a livelihood; and (*e*) the extent to which it may reasonably be expected that the need would be met by existing voluntary organisations. The subcommittee was also asked to obtain further information on these various points where the existing information is inadequate.

It will be seen that the inquiry upon which the subcommittee was asked to enter was of very wide scope and it will easily be understood that the task of collecting and arranging the desired information has been a formidable one. By a careful division of labour, however, a considerable amount of very valuable information has now been collected and (thanks especially to the kindness of Mr. Foulerton who most generously placed his large experience in the compilation of statistical reports at the subcommittee's disposal) has been arranged in tabulated form. The following is a summary of the results of the inquiry as embodied in a report presented to the advisory committee on June 14th, 1907.

(*a*) *Number of midwives retiring.*—On the passing of the Midwives Act of 1902, and especially on the publication of the rules of the Central Midwives Board, large numbers of women in every county of England and Wales signified their intention to retire from practice. Thus, for example, up to the month of October, 1904, out of 106 practising midwives in Cambridgeshire 88 expressed their intention of ceasing to practise, as did 541 out of 582 in Cheshire, 377 out of 417 in the county of Durham, 419 out of 481 in Gloucestershire, 479 out of 553 in Worcestershire, and 725 out of 800 in the West Riding of Yorkshire. Many of those giving up practice were no doubt "undesirables," either on account of their age or of their incompetence; but in some districts this wholesale retirement has left extensive areas of country entirely without midwives and in that way, for the present at least, has occasioned a considerable amount of hardship. It may be mentioned here that the total number of midwives on the roll up to the end of 1906 was 23,278, of whom it is estimated that only about 14,430 are practising midwives, the majority of the remainder being engaged in monthly nursing, &c.

The number of known deaths amongst midwives on the roll during the years 1904–06 was 194; this number is manifestly far below the truth. The deaths must of necessity,

[1] To the great regret of the subcommittee Mr. Hind was unable to attend its meetings or to take any part in its proceedings. In his absence Dr. Cullingworth was appointed to act as chairman.

[2] Rule 1b, Section E, of the Rules and Regulations of the Central Midwives Board reads as follows: "No midwife shall undertake the duty of laying out the dead, or follow any occupation that is in its nature liable to be a source of infection."

owing to the number of aged women enrolled under the "already in practice" clause,[3] be for some time very considerable. The number of midwives struck off the roll during the years 1905–06 was 41.

(b) The number or proportion of untrained midwives on the roll—i.e., of women admitted to the roll within the first two years after the passing of the Act in virtue of their having been in *bonâ fide* practice as midwives for the 12 months preceding the passing of the Act. The last edition of the Midwives Roll which was published in July, 1906, gives the names of 23,278 midwives; of these 12,356 were placed on the roll in virtue of having been already in practice before the Act was passed. If, to the number remaining, is added the number of women who have since been enrolled, in virtue of having passed the examinations held by the Central Midwives Board in June, August, October, and December, 1906, and in February, 1907—viz., 1282—the number thus obtained will represent (approximately) the total number of trained women now on the roll.

The following table showing in respect of certain counties and county boroughs, (1) the population, (2) the number of practising midwives, and (3) the number of trained midwives will convey some idea of the enormous proportion of untrained women at present practising:—

County, or Borough.	Population.	Number of practising midwives.	Number of trained midwives.
Cardiff	183,823	108	22
Cheshire	629,217	435	86
Cambridgeshire	120,150	66	24
Derbyshire	524,620	400	51
Glamorganshire	467,954	573	36
Gloucestershire	321,442	269	84
Monmouthshire	230,806	197	11
Newport	75,585	36	13
Plymouth	120,033	36	7
Lancashire	1,774,467	991	204
East Riding	148,237	26	4
North Riding	250,712	60	11
West Riding	1,473,366	833	134
Shropshire	239,783	342	72
Walsall	94,000	47	—
Warrington	69,153	29	12
Wolverhampton	100.867	45	9
Worcestershire	385,610	407	76

In addition to the untrained midwives on the roll there is a considerable number of women practising as midwives without being on the roll. Thus, for example, in Berkshire there are about 90 such women practising, and at South Shields (according to the medical officer of health) from 30 to 40.

(c) The average rate of payment of midwives in private practice, especially in rural districts, and the average number of cases which they attend annually.—It has been difficult to obtain accurate statistics as to the average rate of payment of midwives, but some trustworthy information has been obtained with regard to certain districts; thus, at East Hoathly, in Sussex, the fee is 7*s.* 6*d.*; at Chipstead, in Surrey, the fee is 10*s.* 6*d.* (a bottle of brandy being also expected); in an agricultural district near Hythe, in Kent, where the wages range from 16*s.* to 20*s.* a week, the old midwives received a fee of 7*s.* 6*d.* and at least one bottle of spirits, to be shared with the patient; and in an agricultural and mining district near Radstock, in Somersetshire (wages being from 14*s.* to 24*s.*), the old fee was 3*s.* 6*d.* for the confinement alone and 5*s.* if the baby was washed during the ensuing week, five or six shillings' worth of spirits being also invariably expected. In these two last-named districts of Kent and Somersetshire the midwife did not cook, wash, or assist in housework. "It would," says Miss Alice Gregory (to whom the committee is indebted for most of the above information), "probably be a fairly accurate statement to say that in rural districts ..... the cost of a midwife's attendance has averaged 10*s.*, although this amount is rarely paid entirely in money. In better-class neighbourhoods of London, as West Kensington and Plumstead, midwives charge a minimum fee of 10*s.*, but in London generally 10*s.* would be more correctly described as the average fee, and in districts near training schools this fee would be unobtainable ....." In Bath the midwife's fee varies from 5*s.* to 15*s.*, attendance on mother and child for ten days being included; but the usual charge is 7*s.* 6*d.* In Manchester the average fee is 10*s.* 6*d.*

The average number of cases attended annually is even more difficult to compute. In a town, where the cases are near together, 200 is said to be a not very unusual number for a trained and active midwife, but the average is considerably below that number. For example, of 212 midwives in London 22 attended more than 300 cases in the year, ten attended between 250 and 300, 12 between 200 and 250, 22 between 150 and 200, 32 between 100 and 150, and the remaining 94 under 100.[4] In Bath one midwife attended about 90 cases, two district nurses attended about 90 between them, 96 cases were fairly evenly distributed amongst three midwives, and 102 were unevenly distributed amongst 24 midwives.

On the question of the average remuneration of midwives valuable information has been furnished by Miss Amy Hughes, General Superintendent of the Queen Victoria's Jubilee Institute for Nurses, which, though not strictly relevant to the inquiry as to the rate of remuneration *in private practice*, nevertheless has an important bearing on the general question, especially in view of the fact that the Queen Victoria's Jubilee Institute is the largest employer of midwives in this country.[5] "The midwives working for the Institute in country districts are not paid by the case," says Miss Hughes, "but are paid a salary. The salaries of the Queen's nurses begin at £30 a year and 'all found'; the salaries of the village nurses range from £45 to £70, and they 'find themselves.' The payment of the patients to the associations varies from 2*s.* 6*d.* to 15*s.* (in Sussex from 1*s.* 6*d.* to 7*s.* 6*d.*; in Yorkshire, from 5*s.* to 30*s.*, and in Herefordshire from 5*s.* to 21*s.*)."

In rural districts generally the number of trained midwives following the occupation of midwife alone is very small. In Miss Gregory's own practice in Somersetshire the largest number that she attended in any one year was 150 and Miss Gregory is of opinion that in any similar district—that is, in a district extending three or four miles from the midwife's house in every direction—that is about as large a number as can be satisfactorily attended. In East Sussex only 20 midwives attended more than 20 cases each per annum. Of these 20 midwives, 14, of whom 12 were in private practice, practised in urban districts and six, of whom three were in private practice, in rural. Of the 12 who were in private practice in urban districts one attended 76 cases, one 60 cases, one 52 cases, and one 50 cases, while the remaining eight attended 246 cases amongst them, an average of 32. The three who were in private practice in rural districts attended exactly 24 cases each. The average number of cases attended in small urban and rural districts by each practising midwife is 18.

(d) The proportion of country districts where it would, and where it would not, be possible for a midwife following no other occupation to earn a livelihood.—In reference to this question of the possibility of earning a livelihood Miss Hughes says: "We have no districts [in connexion with the Queen Victoria's Jubilee Institute] that could support a midwife who did no other work and it is our experience that rural midwifery can be quite well combined with 'non-infectious' nursing. In fact, this seems to be the best solution to the rural problem." In a supplementary note to the very valuable statistics which he has prepared and of which a summary will be found incorporated in this report Mr. Foulerton makes the following observations: "This inquiry having been made mainly with the view of ascertaining the means of subsistence available, under the existing condition of things, for properly qualified midwives, we may call attention to the following facts. In the first place the supply of certified midwives is, at first sight and as judged merely by the actual number of births, very much in excess of that required by the demand for their services. The number of certified midwives whose names appear in the last edition of

[3] For example, out of 346 midwives in Shropshire 99 are between 60 and 70 years of age and 28 are over 70.

[4] There are 490 midwives in London, but of these only 212 sent in lists of births sufficiently regularly to be available for this purpose.

[5] In 1906, 11,502 midwifery and monthly cases were attended by 429 certified midwives connected with the Institute.

the Midwives Roll (1906) is 23,278, and the total number of births registered in England and Wales in 1906 was 934,391; so that if all the certified midwives were in practice there would have been only about 20 cases for each, assuming that about 50 per cent. of the births were attended by medical practitioners. On the other hand, a number of certified midwives do not practise as such but are engaged only in general and monthly nursing and the returns before us suggest that the proportion of actually practising midwives may be estimated as being about 62 per cent. of the whole number, or about 14,430. And on this estimate there would have been about 33 cases for each midwife actually in practice, representing a gross annual income of about £16 10*s*. Whilst this applies to England and Wales as a whole the demand for the services of midwives varies considerably, as one would expect, in different localities according to the prevailing social conditions. Thus, in Group I. of our tables we find that the average number of cases in the year to each practising midwife is nearly 18. The preceding applies to the state of things in smaller urban and in rural districts; in the large boroughs included in Group III. the average number of cases to each practising midwife rises to 61. We believe that the fee paid to a midwife in rural districts varies between 5*s*. and 10*s*. a case, but rarely exceeds 8*s*.; in towns the fee would appear to vary from 5*s*. to 15*s*., but 10*s*. per case would seem to be a fair average. And under these conditions it is obvious that comparatively few of the midwives who are in practice can be earning a living wage by direct payment from patients. Under the conditions prevailing in sparsely populated rural districts we feel convinced that it is simply impossible for a midwife to earn a living wage, or anything approaching a living wage, unless she is working under a county or other charitable association."

Dealing with the same question Miss Alice Gregory, who has herself been in private practice for eight years in a rural district, writes as follows:—

> If we take a 10*s*. fee as the suitable average to be charged in the future and 150 cases as the limit that can be properly attended by one midwife in a scattered country district, it is evident that she can earn £75 (a living wage, though a bare one) in every area where this number of cases may reasonably be expected. 23 in 1000 is a fairly low average birth-rate. Of these the midwife cannot, under the most favourable circumstances, expect to attend more than 18, and of these, some who will attend as a monthly nurse under the doctor (though always on the same basis of daily visits as her other patients). We see therefore that a strong woman, who is a good cyclist and popular with her patients, may anticipate the probability of earning her own livelihood in every district where she can reach a population of 8000 within four miles in every direction from her own home. It will take her from five to ten years to work up such a practice and during that time she will *not* be earning her livelihood but will need assistance.

Almost every medical officer's report seems to show that in spite of a certain economy in numbers which will be made possible when well-trained and more active midwives are employed, the number of cases for each midwife will remain too small to enable her to be self-supporting. It is owing to this fact that in the large and sparsely populated districts the Act is at present being administered so gently. In Manchester there is one midwife to every 3600 persons; in Shropshire there is one to every 700 persons. In Derbyshire the gentlest administration of the Act has been found necessary amongst a very illiterate and unsatisfactory class of midwife in order to retain sufficient women for the needs of so sparsely populated a county. In the rural districts of every county the best is being made of bad material, since it is impossible for the trained midwife to make a living out of midwifery alone.

Having answered the questions submitted to it so far as was possible from existing information the subcommittee, with a view to supplement that information, issued on Dec. 5th, 1906, schedules of inquiries to local supervising authorities. Amongst the subjects of inquiry were: (1) the number of certified midwives resident in the several areas; (2) the number of certified midwives who are actually practising; (3) the proportion of practising certified midwives who are engaged in public and in private practice respectively; (4) the proportion of births attended by medical practitioners and by certified midwives respectively; and (5) the means of subsistence of certified practising midwives. The schedule of inquiries was sent to the 134 local supervising authorities in England and Wales, of which 62 are county and 72 are borough authorities. Replies were received from 40 county and 60 borough authorities. In addition to these, replies were received from various urban and rural local authorities acting under delegated powers in Dorset, Kent, and Lincoln and from the municipal borough of Woolwich. The population of the areas to which these returns apply is estimated as having been 24,413,738 at the middle of the year 1906—i.e., at a time when the total population of England and Wales was estimated by the Registrar-General as being 34,547,016.[6]

Taking the subjects of inquiry one by one the results may be summarised as follows.

1. *The number of certified midwives resident in the various areas.*—The total number of certified midwives returned as resident in the areas concerned (with an estimated population of over 24,000,000) is 12,494; of these, 2948 are trained, 6803 are untrained, and with regard to 2743 no information is given. It may be assumed that the majority of this last group are untrained. These returns, however, are obviously not quite accurate. In some instances the returns give merely the number of midwives who had given notice of their intention to practise within the areas. From the figures given in the last edition of the Midwives Roll (July, 1906) and from other data it is estimated that the number of midwives resident in the areas concerned is probably about 16,600 instead of 12,494 as given in the returns.

2. *The number of certified midwives who are actually practising.*—The total number of practising certified midwives in the areas from which returns have been received is 10,407. This figure is probably correct. Supposing that the number of resident midwives is 16,600 (see preceding paragraph) the percentage actually engaged in practice is 62·6. Some of these attend very few cases, less than half a dozen perhaps in the year.

3. *The proportion of practising certified midwives who are engaged in public and in private practice respectively.*—Out of a total of 10,407, 105 were employed in hospitals, 669 were employed by county, district, and other associations, 148 were employed in Poor-law work, 4128 were engaged in private practice, and with regard to 5357 no information is given. Of this last group it is fairly certain that an overwhelming majority were engaged in private practice.

4. *The proportion of births attended by medical practitioners and by certified midwives respectively.*—Of the 195,774 births occurring amongst an estimated population of 7,227,493 in the areas (Groups I. and III. on Table) as to which closely accurate information has been obtainable, the number returned as attended by medical practitioners is 100,889, or about 52 per cent., and the number attended by certified midwives is 94,885, or about 48 per cent. As the percentage attended by medical practitioners has in some instances been arrived at by crediting *them* with all the births not known to have been attended by certified midwives it is certain that it is over-estimated. The actual proportion of births attended by medical practitioners in England and Wales is probably under 50 per cent. The number of cases attended by midwives varies considerably in different areas, from about 90 per cent. of the total births in one district to "almost none" in others. Speaking generally, the proportion of births attended by midwives is highest in the industrial districts and lowest in agricultural districts.

5. *The means of subsistence of practising certified midwives.*—On this point it has only been possible to obtain very scanty information. Thus no information at all was forthcoming as to 7611 midwives out of the total number of 10,407. Of the remainder 1162 were married women who supplemented their incomes by attending midwifery cases, 706 combined midwifery with other work, whilst 928 made their living by midwifery alone. It must not, however, be supposed that this last group maintained themselves entirely by private practice as a considerable number of them were in the employ of various charitable associations. Of the 7611 as to whom no information is given it is probable that a very large majority are married women who merely supplement their incomes by attending midwifery cases.

The difficulties here shown to exist in regard to the possibility of a trained midwife earning a livelihood in private practice in rural districts are met with also in connexion with the various local associations which are frequently only able to offer very small and inadequate salaries for the services of a district midwife. The association that initiated the present inquiry has been confronted with this

[6] Returns were also received from Cornwall, Leicestershire, and Southampton, but these being incomplete were not included with the rest.

difficulty in a form that has occasioned much anxiety, for when it has expended its funds on the training of suitable women as district midwives it has found it no easy matter to place them. "In many cases," says the last annual report (1906), "the barest living is offered, with no possibility of anything whatever being put aside for old age or even the necessary clothing or holidays; and this is supposed to suffice for a woman whose possession of the certificate of the Central Midwives Board shows her to have good abilities and to be fitted for responsible and very arduous work."

The object of this report is to furnish information, not to suggest remedies. The matter, however, is urgent and the subcommittee earnestly hopes that some efficient means of overcoming the present difficulties will speedily be devised.

APPENDIX.

In the accompanying tables the various areas from which returns have been received are grouped together as follows:—

Group I. includes eight entire administrative county areas, with a combined population of 2,939,148, from which full returns have been received.

Group II. includes 32 entire administrative county areas with a combined population of 11,956,860, from which the returns which have been received, whilst not so full as in the former case, are still of considerable value.

Group III. includes 23 county borough areas, with a combined population of 4,288,345, from which full returns have been received.

Group IV. includes 37 county borough areas, with a

TABLE I.

—	Total number of births and number of births per 1000 of population.			Number of births attended by medical practitioners and others.		Number of certified midwives resident in area.				Number of certified midwives practising in area.	Proportion of number of certified practising midwives to population and number of births.		
	Population.	Total number of births in one year.	Birth-rate.	Attended by medical practitioners and others.	Attended by certified midwives.	Total number returned as belonging to area.	Trained.	Untrained.	Not stated.		Ratio of practising certified midwives to population.	Ratio of number of practising midwives to total number of births.	Ratio of number of practising midwives to number of births attended by midwives.
Group I. (8 administrative county areas)	2,939,148	71,738	24·4	48,275	23,463	1,581	715	866	—	1,314	1 : 2,237	1 : 54·5	1 : 17·8
Group II. (32 administrative county areas)	11,956,860	—	—	—	—	7,468	1138	3953	2377	6,147	1 : 1,945	—	—
Totals for Groups I. and II. (40 administrative county areas)...	14,896,008	—	—	—	—	9,049	1853	4819	2377	7,461	1 : 1,996	—	—
Group III. (23 county boroughs)...	4,288,345	124,046	29 24	52,614	71,432	1,464	579	667	218	1,166	1 : 3,626	1 : 106	1 : 61
Group IV. (37 county boroughs) ...	4,677,883	126,943	27·13	—	—	1,743	415	1180	148	1,591	1 : 2,943	1 : 79	—
Totals for Groups III. and IV. (60 county boroughs)	8,966,228	250,989	27·99	—	—	3,207	994	1847	366	2,757	1 : 3,252	1 : 91	—
Group V. (parts of 3 administrative county areas—Kent, Lincoln, and Dorset. Part of London County Council area—Woolwich)	424,157	—	—	—	—	163	40	123	—	155	1 : 2,736	—	—
	127,345	—	—	—	—	75	61	14	—	34	1 : 3,745	—	—
Total for Group V.	551,502	—	—	—	—	238	101	137	—	189	1 : 2,917	—	—
Total for Groups I., II., III., IV., V.	24,413,738	—	—	—	—	12,494	2948	6803	2743	10,407	1 : 2,345	—	—
Group VI. (3 administrative county areas—Cornwall, Leicester, Southampton)	965,840	—	—	—	—	613	—	—	—	—	—	—	—

TABLE II.

—	Number of certified midwives in areas.				Number of certified midwives actually practising in areas and their employment.						Means of subsistence of certified midwives practising in areas.				
	Trained.	Untrained.	Not stated.	Total.	Employed in hospitals.	Employed by other charitable institutions.	Employed in Poor-law institutions.	Employed in private practice only.	Not stated.	Total.	Midwifery only.	Midwifery with other work.	Married women acting as midwives.	Not stated.	Total.
Group I.	715	866	—	1,581	4	152	16	447	695	1,314	66	155	191	902	1,314
Group II.	1138	3953	2377	7,468	17	396	34	1563	4137	6,147	110	323	336	5378	6,147
Group III.	579	667	218	1,464	55	58	62	971	20	1,166	354	98	290	424	1,166
Group IV.	415	1180	148	1,743	17	51	24	994	505	1,591	365	114	286	826	1,591
Group V.	101	137	—	238	12	12	12	153	—	189	33	16	59	81	189
—	2948	6803	2743	12,494	105	669	148	4128	5357	10,407	928	706	1162	7611	10,407

combined population of 4,677,883, from which the returns received were less ample.

Group V. includes various urban and rural areas situated in the administrative counties of Dorset, Kent, and Lincoln (part of Kesteven), and in the metropolitan borough of Woolwich with a combined population of 551,502.

Group VI. includes the administrative county areas of Cornwall, Leicestershire, and Southampton.

The populations of all areas are estimated to the middle of the year 1906, the number of births and the birth-rates in the respective administrative county areas are generally those for the year 1905, whilst the numbers of births for the county boroughs are those for 1906 as extracted from the Registrar-General's returns.

URBAN COTTAGES AND SMALL HOLDINGS IN THE GARDEN CITY AT LETCHWORTH.

THE Garden City at Letchworth, Herts, grows apace and its first inhabitants are beginning to realise that a great town planned on artistic and hygienic lines is being rapidly developed around them. The interest of the public in the question of rural depopulation and urban congestion was stimulated in a practical manner by the Cottage Exhibition which was held in the Garden City in 1905. On that occasion the exhibition was limited to cheap cottages for rural workers and the use of temporary materials for building was permitted. The cottages were isolated and suitable for districts where large areas of land were available.

The present exhibition comprises cottages built under urban by-laws and at prices which will render it quite possible for exhibitors to combine economy with efficiency of construction and a class for homesteads suitable for small holdings. Prizes are offered for four classes of cottages, the cost ranging from £175 to £240, while a further prize is offered for the best artisan's cottage which is not limited as to cost. In regard to small holdings prizes are offered for (*a*) the best cottage with simple outbuildings suitable for small holdings of five acres, the cost not to exceed £200; (*b*) cottage with barn, stable, cartshed, and pigsty, suitable for a small holding of 20 acres of arable land, the cost not to exceed £250; and (*c*) a small holder's house (to contain dairy) with pigsty, shed, and cowhouse for two cows, the cost not to exceed £300. As regards the urban cottages, the conditions were that they must contain larder with outside window, water-closet and bath, and have gas and water fittings ready for connexion and drainage to the main sewer provided. The height of the rooms was to be not less than 7 feet 6 inches. The cottages in the small holdings section were to comply with rural building by-laws and to contain three bedrooms, water fittings, larder, and outside earth closet. The statements as to cost of building are guaranteed by the fact that the condition of entry into the exhibition is that the exhibitor shall, if called upon to do so, sell the cottage to the Garden City Company at the price stated in the catalogue, or shall undertake, if called upon to do so, to build a similar cottage at the same price for the company reasonably near and on the estate. The exhibition comprises over 30 different types of model cottages and will be formally opened by the Marquess of Salisbury to-day (Friday).

Briefly, the exhibition in its urban section is an attempt to show what may be done in an ordinary suburban street of any industrial town. An area of five acres only has been covered by 60 cottage sites grouped along complete streets with all the conditions of various aspects. The question of aspect is, of course, a difficult one when it is required to arrange rows of cottages with east, north, or west aspects in close proximity, but the designing of single cottages with a southern aspect is simple enough. The best, however, has been done, and it is most pleasing to observe the regard that has been paid to artistic effect, to the elimination of monotonous lines, to the economy effected as regards frontage, and to the exclusion of "built-up backs" and long projecting sculleries all conspiring to block out the light and air from the living rooms. Here is a useful demonstration of how the evils of overcrowding may be banished from our midst, of how the solution of the slum problem may be reached, and of how sanitation may be secured for the masses as well as the classes.

Letchworth is growing rapidly as an industrial centre. Already 11 factories have been erected and there are now between 3000 and 4000 people settled on the estate. It is not intended that the garden city shall ever grow to a town of a greater size than will accommodate 35,000 people and when this stage is reached development will stop so far as the city is concerned. When this consummation is attained the busy city will still be situated in an environment of fresh air and light. It must be admitted that the Garden City is a very interesting sociological experiment to which everyone who cares at all for the social and sanitary welfare of all classes, but especially the poorer working classes, will heartily wish success.

THE HAMPSTEAD GENERAL HOSPITAL.

ON July 16th an extraordinary general meeting of the governors of the Hampstead General Hospital was held in one of the large wards in the recently completed and unoccupied new wing of that institution. We have already recorded the events leading up to the controversy concerning the constitution of the staff of the hospital and the many other points at issue, the chief of which are the question of amalgamation with the North-West London Hospital and the relations of the hospital's council to King Edward's Hospital Fund for London, to the body of subscribers, and to the local medical practitioners. The difficulty of this complicated situation and the vital effect that the solution which is to be adopted will have on the welfare of the hospital are fully recognised by the governors and found expression in a meeting numbering at least 200 ladies and gentlemen, all of whom have at heart the best interests of the institution.

The chair was occupied by Mr. EDWARD BOND who pointed out the gravity of the occasion and reminded the meeting that although it had been convened in protest against the council's action in accepting the terms of the King's Fund for a scheme of amalgamation with the North-West London Hospital and thereby agreeing to the replacement of the staff of local practitioners by one of consultants, yet that the council had acted within its rights as set forth in the articles of association of the hospital in so doing, and that any adverse resolution passed by the meeting would have no legal binding power on the council, although it would doubtless carry great moral weight.

Mr. ERNEST COLLINS, the chairman of the council, then detailed the protracted negotiations that had taken place with the King's Fund and claimed that the council had consistently and loyally supported the present staff and also the best interests of the hospital. He examined at length the financial advantages to the hospital under the amalgamation scheme and stated that at the very lowest estimate, after writing off a liberal sum for the added expense of keeping up the North-West London out-patient department, the Hampstead Hospital will gain a clear increase of £1500 a year income.

The MAYOR of HAMPSTEAD (Councillor C. HENDRICK) then rose to move:—

1. That the practice, hitherto followed, of appointing acting medical officers from among the members of the medical profession practising in Hampstead be continued.
2. That the number of physicians and surgeons on the consulting staff be augmented.

In a vigorous speech, though the vigour would have gained by some curtailment, he criticised severely Mr. Collins' estimate of the added revenues under the amalgamation scheme; he put these at a much smaller figure than £1500 and insisted that the great pride of the Hampstead Hospital was in being a local institution for Hampstead people. They did not, he said, want to emulate the big London hospitals and they greatly preferred in the interests of the patients to have such an excellent staff of local practitioners as they had at present to a staff of consultants who would not be of the first rank and who would live far away. He considered that if the proposed change was made much local support would be lost. He denounced the council for having shown a vacillating spirit and for having submitted too readily to the King's Fund, and accused it of exceeding its duties in having made such a revolutionary change in the hospital's affairs without reference to the body of subscribers. Although the Mayor was interrupted by some adverse ejaculations yet during his speech plaudits were much more frequent, and it certainly seemed that he had the sense of the meeting with him.

Alderman FLEETWOOD PRITCHARD seconded the motion.

Mr. MALCOLM, the treasurer, speaking in support of the council, said that everything must be subordinate to financial considerations, which Dr. W. COODE ADAMS on Christian principles warmly denied.

Mr. J. S. BERGHEIM and Mrs. MEER, on behalf of the Ladies' Association, supported the motion and strongly advocated the retention of the present staff arrangements. They were listened to much more readily than was Mr. C. W. SAWBRIDGE, who spoke no less strongly against it; but at this stage, when the debate was waxing somewhat heated, Mr. DONALD MACMILLAN rose with a pacific suggestion that an arrangement might yet be come to agreeable to all parties. If the motion were put to the meeting it would of necessity cause disastrous dissension in their midst, he said, while he did not consider that there were enough facts before the governors to guide them in voting. He therefore proposed as an amendment that a committee of subscribers should be appointed to inquire and to report as to what course was most advantageous to the hospital and the people of Hampstead, and that it should have power to confer with the hospital council, the King's Fund, and the local branch of the British Medical Association, and that the meeting should stand adjourned until it was ready to make its report.

Dr. E. COLLINGWOOD ANDREWS tried to obtain a pledge from the council that in the interim the amalgamation proposals should be suspended but this was not fully given, although the chairman of the council promised that no more steps would be taken than those to which the council was already pledged.

At the request of the mover of the amendment, who speedily found a seconder, the Mayor withdrew his motion, and after further discussion a committee of six governors, known not to be active partisans in the controversy, was appointed. The amendment on being put to the meeting was carried with two dissentients, several governors abstaining from voting.

Note.—In our article on the Hampstead Hospital in last week's issue the sentence concerning the numbers of outpatients should have run: "at the North-West London Hospital there had been an out-patient practice of about 23,000 attendances a year, whilst that at Hampstead did not much exceed 2300." By an error of type the numbers were considerably multiplied, a mistake which must have been immediately perceived by all interested

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF PRESIDENT.

A QUARTERLY meeting of the Council was held on July 11th, the President, Mr. HENRY MORRIS, being in the chair.

The PRESIDENT reported the result of the election of members of the Council as already published in THE LANCET of last week.

Mr. C. W. Mansell Moullin, Mr. F. S. Eve, Mr. W. Bruce Clarke, and Mr. Charters J. Symonds were introduced, made declarations in the terms of the oath prescribed by the charter of 1800, and took their seats in the Council.

On the recommendation of the museum committee it was resolved that Volume III. of the second edition of the Catalogue of the Physiological Series of Comparative Anatomy in the museum should be offered for sale at 12*s.* per copy. The museum committee also submitted the revised copy of Part I. (Man) of the Osteological Catalogue.

A Member of the College, whose name has already been removed from the Medical Register, was ordered to be removed from being a Member of the College.

The Council referred to the committee of management's resolutions adopted by the General Medical Council on May 30th on the subject of the instruction of students in practical midwifery, and also the resolutions and recommendations of the General Medical Council in reference to professional education and professional examination.

A letter was read from Messrs. Dundas and Wilson reporting that by the death of Miss Moncrieff Arnott on June 10th the legacy of £1000 bequeathed to the College by Mr. James Moncrieff Arnott (who was President of the College in 1850) will become payable to the College free of legacy duty on Nov. 11th next, and reporting, by direction of Miss Arnott's executors, that by her will she requests them to offer to the College the portrait in oil of her father which is in the mansion house of Chapel, Fifeshire. The PRESIDENT stated that he had accepted the portrait on behalf of the Council and had conveyed to Miss Arnott's executors the assurance that the presentation of this portrait of a past President of the College would be warmly welcomed.

The Council then proceeded to elect professors and lecturers for the ensuing year and the following were appointed:—Hunterian professors: W. Sampson Handley, one lecture on Therapeutic Criteria in Cancer; W. F. Victor Bonney, three lectures on a Study of the Connective Tissues in Carcinoma and in Certain Pathological Conditions Preceding its Onset; Donald J. Armour, three lectures on the Surgery of the Spinal Cord and its Membranes; Arthur R. Thompson, two lectures on the Anatomy of the Long Bones relative to Certain Fractures; and Frank C. Shrubsall, three lectures on the Physical Anthropology of the Pigmy and Negro Races of Africa. Arris and Gale lecturers: F. A. Bainbridge, one lecture on the Pathology of Acid Intoxication; and Major Greenwood, jun., two lectures on the Physiological and Pathological Effects which Follow Exposure to Compressed Air. Erasmus Wilson lecturers: Samuel G. Shattock, one lecture on Ovarian Teratomata; J. W. H. Eyre, one lecture on the Surgical Importance of the Pyogenetic Activities of Diplococcus Pneumoniæ; and L. S. Dudgeon, one lecture on Infection of the Urinary Tract due to Bacillus Coli.

Mr. Henry Morris was re-elected President and Mr. Rickman J. Godlee and Mr. W. Watson Cheyne were appointed Vice-Presidents.

The PRESIDENT stated that the vacancy on the Court of Examiners occasioned by the resignation of Mr. C. H. Golding-Bird would be filled at the ordinary Council on July 25th.

The PRESIDENT further stated that the vacancies on the Board of Examiners in Dental Surgery occasioned by the resignation of Mr. A. Pearce Gould and by the expiration of the period of office of Mr. W. B. Paterson would be filled at the ordinary Council on July 25th. Mr. Paterson will offer himself for re-election.

A letter was read from Mr. C. R Hewitt, stating that he has accepted a librarianship in the Royal Society of Medicine and tendering his resignation of the post which he has been holding in the College. The Council accepted the resignation and expressed its appreciation of the services which he had rendered to the College during 22 years.

The SECRETARY reported the death, on June 21st, of Professor Edward Hallaran Bennett, Honorary Fellow of the College. The President was requested to convey the sympathy and condolence of the Council to the widow and family.

The SECRETARY reported that Sir John Tweedy had presented to the College Rymer's "Fœdera" in 20 volumes, folio, published in 1711. The best thanks of the Council were given to Sir John Tweedy for his interesting and valuable gift.

THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE seventy-fifth annual meeting of the British Medical Association will be held at Exeter from July 30th to August 3rd. The following is a brief programme of the proceedings.

The President of the Association for 1907–08, Dr. HENRY DAVY, physician to the Royal Devon and Exeter Hospital, will be inducted on Tuesday afternoon, July 30th, and in the evening will deliver his Presidential Address and welcome delegates from the colonial branches and distinguished foreign guests. The Middlemore prize will be presented at the evening meeting to Mr. Sydney Stephenson.

The Address in Medicine will be given on Wednesday afternoon by Dr. W. Hale White, physician to Guy's Hospital, who will advance "a plea for accuracy of thought in medicine." The Address in Surgery will be delivered by Mr. H. T. Butlin, consulting surgeon to St. Bartholomew's Hospital and formerly treasurer of the British Medical Association, on Thursday afternoon; his address will be "on the contagion of cancer in human beings, auto-inoculation." The popular lecture, a comparatively new feature in

the Association week, suggested by the late Dr. G. Bagot Ferguson of Cheltenham, by whom the first was delivered in 1904, will be given this year by Sir John William Moore of Dublin, who will speak on weather, climate, and health, illustrating his subject by a large number of screen and lantern slides. The temporary pathological museum promises not to fall behind any of its predecessors; and the usual annual exhibition of foods, drugs, medical and surgical instruments, sanitary and ambulance appliances, &c., will be open on each day except Saturday from 9 A.M. to 6 P.M.

The arrangements for the social side of the meeting have not been neglected. On Tuesday afternoon the Mayor of Exeter will give a garden party; on Wednesday afternoon garden parties will be given by the President of the South-Western branch, Dr. P. M. Deas, and by Dr. D. W. Samways; on Thursday afternoon Sir Thomas Dyke Acland will give a garden party, and Mr. G. G. Gidley, Cullompton, will entertain a picnic party at tea; on Friday afternoon the High Sheriff of Devon, who is also President of the Royal Devon and Exeter Hospital, Sir Dudley Duckworth King, will give a garden party at Wear House; and there will be luncheon parties at Teignmouth, Torquay, and Sidmouth. On Wednesday evening there will be a reception by the South-Western branch on Northernhay; and on Friday evening the civic authorities will hold a reception in the Albert Memorial. The annual dinner of the Association will take place on Thursday evening and on the same evening ladies accompanying members will be entertained at the theatre by the ladies' committee. Excursions have been arranged to visit Devonport Dockyard; the Station Hospital, Devonport; the Royal Naval Hospital, Plymouth; the gunnery, torpedo, and training ships; and Plymouth Sound and the River Tamar. Those taking part in the last-mentioned excursion will be entertained at tea by the Earl of Mount Edgcumbe. Other parties will visit Falmouth and Ilfracombe; others Bideford and Clovelly, where they will be entertained by Mrs. Hamlyn of Clovelly Court; and others Tavistock, driving thence to Endsleigh, where they will be entertained at luncheon by the Duke of Bedford.

MEDICINE AND THE LAW.

Fracture of the Thyroid Cartilage.

FRACTURE of the thyroid cartilage is sufficiently uncommon to warrant notice of the following case tried before Mr. Justice Sutton at the Staffordshire summer assizes on July 12th last. James Lees, aged 33 years, a powerfully built man in the employ of the Burton Brewery Company, was indicted for the manslaughter of a fellow employee, named Henry Townsend, on June 12th. Mr. D. Cotes-Preedy, for the prosecution, stated that about 10.50 A.M. on that day the two men quarrelled. Lees struck the deceased two blows on the face and one on the neck. Five minutes later Townsend went to a friend near by with his nose and mouth bleeding and voice very hoarse and made a complaint. Dr. R. A. H. Atkinson, house surgeon to the Burton Infirmary, said that the deceased was admitted at 12.15 P.M. on the same day. The left cheek was contused and the inside of the lower lip was cut. On examining the neck a distinct grating was felt over the region of the left half of the thyroid cartilage, which pointed to a fracture. There was no external mark to correspond, but there were two small abrasions on the side of the neck. Townsend's voice was husky and indistinct. During the first day after admission the patient had half a dozen attacks of dyspnœa, and on the following day three attacks. His condition did not improve and on June 14th delirium tremens supervened with intervals of consciousness. To relieve the dyspnœa tracheotomy was performed on June 16th, but the patient sank and died on the same day. Townsend was a fairly healthy man. A post-mortem examination was made shortly after death by Dr. Walter George Lowe, of Burton-upon-Trent. There was a fracture of the left half of the thyroid cartilage. The vocal cords were still swollen. The lungs and right side of the heart were engorged with blood and the latter organ showed signs of commencing degeneration. The liver was rather fatty. In the witness's opinion death was due to asphyxia and heart failure brought about by the fracture of the cartilage. Both medical men agreed that such a fracture was most rare and that in all probability a severe blow must have been struck to cause the injury. For the defence Mr. Sherwood stated that the deceased man had threatened Lees with a shovel and pleaded for leniency on the ground of the latter's excellent character. His lordship bound Lees over in his own recognisances to come up for judgment if called upon.

The Fast Driving of Motor-cars.

It will have been observed by many drivers of motor-cars that one of their number was sentenced at the recent assizes at Chester to nine months' imprisonment in the second division for manslaughter by negligently driving over and killing a man. The Lord Chief Justice who tried the case pointed out, in sentencing the prisoner, the grave danger necessarily occasioned by the reckless driving of motor-cars and observed that it appeared not to be realised sufficiently that when a machine of such a nature was driven along a public road the lives and property of others must be respected by the person in charge. At present there have been a good many deaths caused by motor-cars and comparatively few convictions for manslaughter, but many motorists seem to think that the increase in the maximum speed permitted to them by law enables them to drive at a pace approaching 20 miles an hour with safety wherever they are. A large number of motor-cars are to be seen daily in the streets of London travelling at a pace which may cause a serious accident at any moment, and the fault will be that of the driver, should one take place, even though something beyond his control may be immediately responsible for the occurrence. The owners of private motor cars incur a heavy responsibility in allowing or causing their chauffeurs, where these are employed, to drive at excessive speeds for the sake of convenience or pleasure. It may also be observed occasionally that familiarity with their work is beginning to breed contempt of danger in the breast of the driver of the motor-omnibus. Where these belong to rival companies, the spirit of competition is already leading to something very like racing, and when two or more motor-omnibuses are racing in a London street any accident that may occur is likely to be a very severe one.

ASYLUM REPORTS.

Surrey County Asylum, Brookwood (*Annual Report for the Year 1906*).—On Jan. 1st, 1906, there were 1341 patients on the register of the asylum; of these, 542 were males and 799 were females. During the year 393 (174 males and 219 females) were admitted and Mr. James E. Barton, the medical superintendent, again draws attention to the incurable types of insanity from which many of these were suffering. The average age on admission was 43 years and 86 patients were over 60 years of age, which is strong proof of the large number of senile cases received into thecounty asylums. Of those discharged during the year 112 (54 males and 58 females) were "recovered," 37 (ten males and 27 females) were "relieved," and 102 (58 males and 44 females) were "not improved." The death-rate, calculated on the daily average number resident, was 11·26, which is higher than the previous year, but 69 out of the 155 patients who died were over 60 years of age. A few cases of dysentery and erysipelas are reported. This asylum, as is the case with so many county asylums in this country, was much overcrowded during the year and a contract was arranged with the Oxford Asylum for the reception of 40 males and 20 females and with the York City Asylum for the reception of 30 females, but great difficulty was experienced in finding the class of cases suitable for transfer, owing to the restrictions imposed in the contract and also to the Commissioners in Lunacy insisting that only the patients who were never visited by friends should be sent. At the end of the year the number of patients boarded under contract with other asylums was 130—viz., at Dorset, 40; at Exeter Borough, 10; at Oxford, 60; and at York, 20. There were 11 patients who escaped during the year and of these 10 were recaptured within the statutory period. Most of the escapes took place among those working in the farm or gardens. The Commissioners in Lunacy note in their report "that they were glad to see the children segregated from the adults on both sides, in small wards of 11 girls and three boys on the female side and 13 boys on the male side." The weekly maintenance rate for home county patients was 12*s.* per head. The farming and gardening account shows a credit balance of nearly £600.

Croydon Mental Hospital (Annual Report for the Year ending March 31st, 1907).—The annual report is made up to March 31st, 1907, but the statistical tables are for the year ending Dec. 31st, 1906. There were 161 patients (89 males and 72 females) admitted during the year 1906. Dr. E. S. Passmore states that of these there was a history of intemperance in 37 (26 males and 11 females), or nearly 23 per cent.; a history of venereal disease in 8·7 per cent., and hereditary influence in 31 per cent. He goes on to say that "if our feeble-minded and mental undesirables were prevented from propagating their species a large number of asylums in the country could be closed." The medical superintendent gives a table showing the increase of patients chargeable to Croydon since 1902. The yearly ratio of accumulated cases is 20·66 women and 8·44 men up to December last. During the year 79 patients were discharged (42 males and 37 females); of these, 54 (32 males and 22 females) are reported as "recovered," 22 (nine males and 13 females) as "relieved," and three (one male and two females) as "not improved." There were 51 deaths (33 males and 18 females) during the year 1906, and of these 13 were due to general paralysis and ten to pulmonary tuberculosis. The maintenance rate remains at 14*s.* The farming and gardening account shows a credit balance of £103. Owing to overcrowding on the female side in the main building the isolation hospital is being temporarily used to accommodate 18 female patients. There were no cases of infectious disease during the year.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8054 births and 3774 deaths were registered during the week ending July 13th. The annual rate of mortality, which had been equal to 12·5 per 1000 in each of the two previous weeks, declined to 12·3 in the week under notice. During the 13 weeks of last quarter the death-rate in these towns averaged 15·1 per 1000, the rate in London during the same period being 14·6. The lowest rates in the 76 towns last week were 3·5 in Hornsey, 5·1 in Leyton, 6·2 in King's Norton, and 7·0 in Walthamstow; the highest rates were 17·7 in Stockon-on-Tees, 17·8 in Preston, 18·6 in Hanley, 19·1 in Oldham and in Tynemouth, and 19·4 in Bootle. The 3774 deaths in the 76 towns showed a decline of 79 from the number in the previous week, and included 341 which were referred to the principal epidemic diseases, against 427 and 366 in the two preceding weeks; of these, 127 resulted from measles, 103 from whooping-cough, 39 from diarrhœa, 33 from diphtheria, 29 from scarlet fever, and ten from "fever" (principally enteric), but not any from small-pox. No death from any of these epidemic diseases was registered last week in Southampton, Burnley, Swansea, Huddersfield, Hornsey, or in eight other of the 76 towns; the annual rates from these diseases, however, ranged upwards to 3·3 in Devonport, 3·7 in Derby, 4·7 in Wigan, and 5·4 in Walsall. The deaths from measles, which had been 158 and 130 in the two previous weeks, further fell to 127 in the week under notice; the death-rates from this disease ranged upwards to 1·4 in Merthyr Tydfil, 1·9 in Reading, 3·3 in Derby, 3·5 in Wigan, and 4·3 in Walsall. The fatal cases of whooping-cough, which had been 136 and 109 in the two preceding weeks, further decreased to 103 last week, the highest death-rates from this cause being 1·2 in West Ham and in Wigan and 1·7 in Barrow-in-Furness. The 39 deaths from diarrhœa showed a further slight decline from the comparatively small numbers in recent weeks; in Devonport the death-rate from this disease was 2·0 per 1000. Of the 29 fatal cases of scarlet fever, 11 belonged to London; and of the 33 deaths from diphtheria, eight were recorded in London and three in Liverpool. Not more than one death from "fever" was registered during the week under notice in any of the 76 towns. The number of scarlet fever patients in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had risen from 2658 to 3193 in the nine preceding weeks, had further increased to 3276 at the end of last week; 493 new cases were admitted during the week, against 414, 422, and 504 in the three preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 156 and 148 in the two preceding weeks, further declined to 139 in the week under notice, but were six in excess of the corrected average number in the corresponding week of the five years 1902–06. The causes of 35, or 0·9 per cent., of the deaths registered in the 76 towns during the week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, Newcastle-on-Tyne, Salford, Leicester, and in 52 other of the 76 towns; the proportion of uncertified deaths, however, showed considerable excess in Liverpool, Birmingham, Sheffield, and Barrow-in-Furness.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 17·3, 15·0, and 14·5 per 1000 in the three preceding weeks, further declined to 13·7 in the week ending July 13th, but exceeded by 1·4 per 1000 the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 9·0 in Aberdeen and 10·6 in Paisley, to 17·3 in Dundee and 22·5 in Perth. The 475 deaths in these towns showed a decrease of 29 from the number in the preceding week, and included 60 which were referred to the principal epidemic diseases, against 84, 76, and 59 in the three preceding weeks. These 60 deaths were equal to an annual rate of 1·7 per 1000, which exceeded by 0·6 per 1000 the rate from the principal epidemic diseases in the 76 large English towns; they included 22 which were referred to whooping-cough, 14 to "fever," 12 to diarrhœa, eight to measles, two to scarlet fever, and two to diphtheria, but not any to small-pox. The fatal cases of whooping-cough, which had continuously declined from 57 to 18 in the six preceding weeks, rose again to 22 in the week under notice, and included 12 in Glasgow, five in Edinburgh, three in Dundee, and two in Paisley. The deaths referred to "fever," which had been 21 and 18 in the two previous weeks, further fell last week to 14, of which six were registered in Glasgow, four in Edinburgh, two in Leith, and one each in Dundee and in Paisley; all these 14 deaths were certified as from cerebro-spinal meningitis. The 12 fatal cases of diarrhœa showed a slight increase over the number in the preceding week, and included three in Glasgow, three in Edinburgh, two in Dundee, and two in Paisley. The deaths from measles, which had been four and five in the two previous weeks, further rose last week to eight, of which seven occurred in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 72 and 80 in the two preceding weeks, further increased to 88 in the week under notice, and exceeded by 30 the number in the corresponding week of last year. The causes of 22, or 4·7 per cent., of the deaths registered in the eight towns during the week were not certified or not stated; in the 76 English towns the proportion of uncertified deaths did not exceed 0·9 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 20·8, 19·5, and 18·3 per 1000 in the three preceding weeks, rose again to 21·0 per 1000 in the week ending July 13th. During the 13 weeks of last quarter the death-rate averaged 25·4 per 1000, the rates during the same period being 14·6 in London and 17·1 in Edinburgh. The 157 deaths of Dublin residents registered during the week under notice showed an increase of 20 over the number in the preceding week, and included 14 which were referred to the principal epidemic diseases, against 11 and 19 in the two preceding weeks; of these, seven resulted from whooping-cough, five from diarrhœa, and two from measles, but not any from small-pox, from scarlet fever, from diphtheria, or from "fever." These 14 deaths were equal to an annual rate of 1·9 per 1000, the rate during the same week from the principal epidemic diseases being 1·1 in London and 2·1 in Edinburgh. The seven fatal cases of whooping-cough were slightly fewer than the number in the previous week, while the five deaths from diarrhœa considerably exceeded the number in any recent week. The 157 deaths from all causes in Dublin last week included 30 of children under one year of age and 42 of persons aged upwards of 60 years, these numbers being respectively six and ten in excess of those returned in the previous week. Four inquest cases and three deaths from violence were registered; and 58, or nearly 37 per cent., of the deaths occurred in public institutions. The causes of eight, or 5·1 per cent., of the deaths in Dublin last week were not certified; the percentage of uncertified

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1907.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1907.	NOTIFIED CASES OF INFECTIOUS DISEASE.										DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,758,218	—	1688	525	1	80	4	16	290	17	2621	7·2	—	229	47	41	180	—	7	1	60	565	1·5	4451	12·2	90
West Districts.																										
Paddington	149,909	—	34	9	—	1	—	1	8	—	53	4·6	—	4	1	2	3	—	—	—	1	11	1·0	109	9·5	85
Kensington	181,842	—	45	17	—	4	2	—	12	—	80	5·7	—	7	1	—	6	—	—	—	—	14	1·0	142	10·2	36
Hammersmith	122,337	—	29	14	—	2	—	—	3	—	48	5·1	—	3	—	1	3	—	1	—	—	8	0·9	111	11·8	50
Fulham	166,749	—	30	29	—	6	—	1	12	1	79	6·2	—	15	—	1	7	—	1	—	5	29	2·3	135	10·6	91
Chelsea	74,857	—	14	9	—	—	—	1	2	1	27	4·7	—	7	—	1	2	—	—	—	1	11	1·9	85	14·8	139
City of Westminster	172,219	—	32	12	—	2	—	—	4	1	51	3·9	—	2	—	2	4	—	—	—	1	9	0·7	149	11·3	86
North Districts.																										
St. Marylebone	127,718	—	37	9	—	3	—	—	3	—	52	5·3	—	—	5	—	3	—	—	—	1	9	0·9	119	12·1	56
Hampstead	91,137	—	15	4	—	5	—	1	3	—	28	4·0	—	1	—	1	1	—	—	—	—	3	0·4	52	7·4	74
St. Pancras	236,753	—	56	17	—	1	—	—	15	1	90	5·0	—	21	1	2	10	—	1	—	2	37	2·0	247	13·6	138
Islington	347,017	—	75	33	—	5	—	4	18	1	136	5·1	—	19	1	—	20	—	1	—	5	46	1·7	315	11·8	79
Stoke Newington	53,613	—	17	3	—	1	—	1	1	—	23	5·6	—	1	—	—	5	—	—	—	—	6	1·5	34	8·3	71
Hackney	232,993	—	129	27	—	5	—	1	23	—	185	10·4	—	5	2	2	4	—	—	—	3	16	0·9	191	10·7	61
Central Districts.																										
Holborn	55,134	—	11	6	—	1	—	—	1	1	20	4·7	—	1	—	—	1	—	—	—	1	3	0·7	65	15·4	91
Finsbury	96,732	—	41	13	—	—	—	—	5	1	60	8·1	—	8	4	1	7	—	—	—	2	22	3·0	145	19·5	129
City of London	20,310	—	7	3	—	—	—	—	1	—	11	7·1	—	—	—	—	1	—	—	—	—	1	0·6	29	18·6	143
East Districts.																										
Shoreditch	115,662	—	56	21	—	—	—	—	14	—	91	10·3	—	7	1	1	17	—	—	—	3	29	3·3	133	15·0	109
Bethnal Green	130,831	—	83	21	—	3	—	—	18	—	125	12·5	—	7	2	3	1	—	—	—	3	16	1·6	139	13·9	119
Stepney	308,923	—	181	42	—	6	—	—	25	4	258	10·9	—	1	7	3	11	—	—	—	4	26	1·1	307	13·0	86
Poplar	171,086	—	71	21	—	3	—	1	8	2	106	8·1	—	9	2	4	16	—	—	—	4	35	2·7	204	15·6	119
South Districts.																										
Southwark	209,781	—	79	24	—	7	—	—	23	1	134	8·3	—	29	4	2	10	—	—	—	3	48	3·0	269	18·0	143
Bermondsey	128,263	—	71	21	—	1	—	—	5	—	98	10·0	—	11	2	2	3	—	—	—	3	21	2·1	137	13·9	79
Lambeth	318,538	—	78	24	1	4	1	2	15	1	126	5·2	—	32	4	4	5	—	1	—	4	50	2·0	305	12·5	96
Battersea	181,736	—	72	15	—	2	—	1	15	1	106	7·6	—	10	2	2	5	—	—	—	2	21	1·5	155	11·1	91
Wandsworth	281,419	—	88	33	—	3	—	1	14	—	149	6·9	—	7	1	1	12	—	1	—	—	22	1·0	227	10·5	80
Camberwell	277,059	—	115	30	—	8	—	1	16	—	170	8·0	—	11	3	1	13	—	—	—	3	31	1·5	248	11·7	92
Deptford	116,510	—	46	19	—	1	1	—	8	—	75	8·4	—	7	—	2	2	—	—	—	3	14	1·6	113	12·6	76
Greenwich	107,222	—	45	19	—	1	—	—	3	1	69	8·4	—	2	1	1	2	—	1	—	2	9	1·1	81	9·8	41
Lewisham	152,532	—	45	16	—	1	—	—	5	—	67	5·7	—	2	2	—	1	—	—	—	2	7	0·6	93	7·9	41
Woolwich	129,336	—	76	14	—	3	—	—	10	—	103	10·4	—	—	1	2	5	—	—	1	2	11	1·1	92	9·3	88
Port of London	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Including membranous croup.

deaths during the week did not exceed 0·1 in London, while in Edinburgh it was 7·7. The 104 deaths in Belfast included ten which were referred to cerebro-spinal meningitis or cerebro-spinal fever.

VITAL STATISTICS OF LONDON DURING JUNE, 1907.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 7·2 per 1000 of the population, estimated at 4,758,218 persons in the middle of the year; the rates in the three preceding months were 6·6, 6·9, and 7·1 per 1000 respectively. The lowest rates last month were recorded in Paddington, Chelsea, the City of Westminster, Hampstead, and Holborn; and the highest rates in Hackney, Shoreditch, Bethnal Green, Stepney, and Woolwich. No case of small-pox was notified in London during the month. The prevalence of scarlet fever showed a marked increase over that recorded in either of the two previous months; this disease was proportionally most prevalent in Hackney, Shoreditch, Bethnal Green, Stepney, Bermondsey, and Woolwich. The Metropolitan Asylums hospitals contained 2975 scarlet fever patients at the end of last month, against 2614, 2586, and 2777 at the end of the three preceding months; the weekly admissions averaged 390, against 312, 332, and 368 in the three preceding months. Diphtheria was considerably less prevalent than it had been in any other month of this year; among the various metropolitan boroughs this disease showed the greatest proportional prevalence in Fulham, Shoreditch, Bethnal Green, Bermondsey, Deptford, and Greenwich. There were 806 diphtheria patients in the Metropolitan Asylums hospitals at the end of last month, against 1012, 946, and 933 at the end of the three preceding months; the weekly admissions averaged 107, against 136, 119, and 121 in the three preceding months. The prevalence of enteric fever showed a slight increase over that in the preceding month; this disease was proportionally most prevalent in Fulham, St. Marylebone, Hampstead, Bethnal Green, Southwark, Camberwell, and Woolwich. The number of enteric fever patients under treatment in the Metropolitan Asylums hospitals, which had been 93, 66, and 47 at the end of the three preceding months, had risen again to 57 at the end of last month; the weekly admissions averaged 13, against 13, 12, and nine in the three preceding months. Erysipelas was proportionally most prevalent in Hackney, Shoreditch, Bethnal Green, Stepney, Battersea, and Woolwich. The 16 cases of puerperal fever notified during the month included four in Islington and two in Lambeth. Of the 17 notified cases of cerebro-spinal meningitis, four belonged to Stepney, two to Poplar, and one to each of 11 other boroughs.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided. During the four weeks ending June 29th the deaths of 4451 persons belonging to London were registered, equal to an annual rate of 12·2 per 1000; in the three preceding months the rates had been 16·9, 15·8, and 14·0 per 1000. The death-rates last month ranged from 7·4 in Hampstead, 7·9 in Lewisham, 8·3 in Stoke Newington, 9·3 in Woolwich, 9·5 in Paddington, and 9·8 in Greenwich, to 15·0 in Shoreditch, 15·4 in Holborn, 15·6 in Poplar, 18·0 in Southwark, 18·6 in the City of London, and 19·5 in Finsbury. The 4451 deaths from all causes in London last month included 565 which were referred to the principal infectious diseases; of these, 229 resulted from measles, 47 from scarlet fever, 41 from diphtheria, 180 from whooping-cough, seven from enteric fever, one from ill-defined pyrexia, and 60 from diarrhœa. The lowest death-rates from the principal infectious diseases were recorded in the Cities of London and Westminster, and in the boroughs of Hampstead, Holborn, and Lewisham; and the highest rates in Fulham, Finsbury, Shoreditch, Poplar, and Southwark. The 229 fatal cases of measles were 30 in excess of the corrected average number in the corresponding periods of the five preceding years; the greatest proportional mortality from this disease occurred in Fulham, Chelsea, St. Pancras, Finsbury, Southwark, Bermondsey, and Lambeth. The 47 deaths from scarlet fever were seven below the corrected average; among the various metropolitan boroughs this disease was proportionally most fatal in St. Marylebone, Finsbury, Stepney, Southwark, and Bermondsey. The 41 fatal cases of diphtheria were slightly below the corrected average number; the highest death-rates last month from this disease occurred in Bethnal Green, Poplar, Bermondsey, Deptford, and Woolwich. The 180 deaths from whooping-cough exceeded by 66 the average for the corresponding period of the five preceding years; the greatest proportional mortality from this disease occurred in Islington, Stoke Newington, Finsbury, Shoreditch, and Poplar. There were only eight deaths from "fever" last month, against an average of 19 in the corresponding period of the five preceding years; these eight deaths belonged respectively to Hampstead, Fulham, St. Pancras, Islington, Lambeth, Wandsworth, Greenwich, and Woolwich. The 60 fatal cases of diarrhœa were 23 below the average; this disease was proportionally most fatal in Fulham, Shoreditch, Bethnal Green, Poplar, Bermondsey, and Deptford. In conclusion, it may be stated that the aggregate mortality from the principal infectious diseases in London last month was nearly 11 per cent. above the average.

Infant mortality, measured by the proportion of deaths under one year of age to registered births, was equal to 90 per 1000. The lowest rates were recorded in Kensington, Hammersmith, St. Marylebone, Hackney, Greenwich, and Lewisham; and the highest rates in Chelsea, St. Pancras, Finsbury, the City of London, and Southwark.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. S. F. Henderson has been appointed registrar and secretary at the Royal Victoria Hospital, Netley, vice Lieutenant-Colonel G. E. Twiss. Major G. A. T. Bray has been appointed embarking medical officer at Southampton. Colonel A. T. Sloggett, C.M.G., Principal Medical Officer of the London District, has been appointed president of a board of officers constituted for the purpose of examining candidates for commissions in the Royal Army Medical Corps, on July 24th, in London.

Lieutenant Francis J. Turner to be Captain (dated March 4th, 1907).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 3rd Lancashire: Surgeon-Major and Honorary Surgeon-Lieutenant-Colonel M. J. Fox resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated June 6th, 1907). 6th Lancashire: Surgeon-Lieutenant F. W. Bailey to be Surgeon-Captain (dated June 12th, 1907). 1st Midlothian: William Guthrie Porter to be Surgeon-Lieutenant (dated June 17th, 1907).

Rifle: 2nd Volunteer Battalion the Hampshire Regiment: Herbert George Harris to be Surgeon-Lieutenant (dated June 1st, 1907). 5th (Glasgow Highland) Volunteer Battalion the Highland Light Infantry: Alexander Macphail to be Surgeon-Lieutenant (dated June 14th, 1907). 3rd Volunteer Battalion the Prince Albert's (Somersetshire Light Infantry): Percy George McReddie (late Surgeon-Lieutenant) to be Second Lieutenant (dated June 4th, 1907). 1st Volunteer Battalion the Royal Welsh Fusiliers: Surgeon-Captain J. E. H. Davies resigns his commission (dated June 14th, 1907). 1st Volunteer Battalion the Duke of Cornwall's Light Infantry: Surgeon-Lieutenant K. M. Pardhy resigns his commission (dated June 15th, 1907). 3rd Volunteer Battalion the Welsh Regiment; Surgeon-Lieutenant C. R. White to be Surgeon-Captain (dated June 12th, 1907). 2nd Volunteer Battalion the Manchester Regiment: Surgeon-Captain J. A. K. Renshaw resigns his commission (dated May 24th, 1907). John Alfred Knowles Renshaw (late Surgeon-Captain) to be Captain (dated May 24th, 1907).

THE MILITARY STATION HOSPITAL, DEVONPORT.

The Director-General of the Army Medical Service (Surgeon-General Sir A. H. Keogh, K.C.B.), and Sir James R. A. Clark, Colonel-in-Chief of the Royal Army Medical Corps (Militia), on July 10th made an inspection of the Royal Army Medical Corps (Militia) under training at the Military Station Hospital, Devonport. After the parade the Director-General, Sir James Clark, and Lieutenant-Colonel J. M. Jones, R.A.M.C., inspected the wards of the hospital.

Correspondence.

"Audi alteram partem."

THE APPOINTMENT OF SANITARY OFFICERS TO GENERAL HOSPITALS.

To the Editors of THE LANCET.

SIRS,—The necessity of sanitary supervision is recognised not alone in the construction but also in the practical every-day working of all institutions where large bodies of human beings are brought together—schools, factories, theatres, prisons, barracks, &c., and which are, or should be, regularly inspected by competent experts. If this care is needed in the case of the healthy it is much more so in those suffering from disease. The body under these circumstances gives off many more deleterious substances. The sick are more susceptible to disease germs than the healthy and the concentration of a large number of those suffering specially from the infectious disorders renders the infection not alone more potent but also more virulent unless the greatest attention is observed in keeping the ventilation and other sanitary arrangements as perfect as possible. These considerations are almost so self-evident that it is a matter of surprise that at the present time very few general hospitals have any expert advisers responsible for the many details included under the term of modern sanitation. No doubt in the more recently constructed buildings the ventilation, heating, and removal of excreta will probably be specially looked after, but this is only one aspect of sanitation and even these particulars are liable to go out of order if not kept under constant supervision. In many cases these details are left completely in the hands of the architect who lacks the knowledge needed which can only be acquired by a sanitary medical expert who has an intimate acquaintance with the daily working of these institutions. The ordinary medical attendants of the hospital have neither the time nor, in the majority of cases, the special training and experience to act as sanitary experts. Where so many purely technical questions arise it would be undesirable, if not dangerous, to place the decision of them in the hands of those who had not both special training and practical experience, nor do I think that the ordinary medical attendants would be anxious to add to their already laborious duties. No doubt in certain cases, as in the arrangements to prevent the spread of infectious diseases, the sanitary expert should consult with the general staff, but I do not fear any clashing in this respect. The general staff would recognise that the sanitary adviser was an important factor in aiding them in their efforts to cure.

Amongst some of the details the sanitary adviser would specially report upon would be the size of each ward and number of beds in them, the position of the beds, the lighting (natural and artificial), the heating, and, still more important, the ventilation so as to insure the purity of the air without draught, the accommodation for storing patients' clothes, the position, &c., of the outdoor department and dead-house, and the removal of the excreta and dry refuse. The excreta are often infected with the germs of contagious diseases and to permit them to be thrown into the closets without efficient disinfection is to infect the public sewers and through them the soil and water. I drew attention to this danger several years ago in a communication to the Liverpool Congress of the Royal Sanitary Institute and showed in how many cases the so-called disinfection of excreta was practically useless.

The many serious questions connected with the spread of infectious diseases in the hospital could be arranged in consultation with the general staff. The carrying-out of the disinfection, &c., would be under the guidance of the adviser and the efficiency of the annual cleaning so as to insure the destruction of any dangerous germs should be under his direction. Lastly, I may refer to the important duties of the adviser in connexion with the food-supply of the hospital. I need hardly dwell upon the importance of a supply of pure unadulterated food to the sick, still in how many general hospitals do the general staff examine that food or could they be expected or be competent to form an opinion on the subject. For example, take one very largely used food—viz., milk. The milk-supply of unions, prisons, &c., is more or less kept under supervision and prosecutions for adulteration are not uncommon. Do cases of contamination of the general hospitals' supply ever come before the courts? Are we to understand from this that these contractors are always above suspicion or is it to want of any really efficient investigation and control? In the case of milk not alone should the supply be frequently tested but the contracts should have a clause permitting the adviser to visit and to inspect the dairies, cows, &c., at any time he thought fit. Outside the milk the meat, vegetables, and other food should be open to inspection and report by the adviser. I would be inclined to go further and permit him to give at least friendly advice on the cooking. It is no exaggeration to say that the cooking in many general hospitals leaves much to be desired, nay, reformed. The preparation of the diet of a sick person is not the least important element in effort at his cure.

I have perhaps said enough to justify my contention that the appointment of sanitary advisers to general hospitals would be public gain—alike beneficial to the patients, the general public, and the medical and surgical staffs.

I am, Sirs, yours faithfully,

July 8th, 1907. ANTONY ROCHE, M.R.C.P. Irel.

GROCCO'S TRIANGLE: PHYSICAL AND ANATOMICAL EXPLANATION.

To the Editors of THE LANCET.

SIRS,—The objection urged by Dr. Alexander Morison against personal names as a basis of medical nomenclature is not the only one which he might have stated. There is a further drawback in the uncertainty which often exists as to priority of discovery. In this instance the names of v. Koranyi and of Rauchfuss have also been mentioned in connexion with an early clinical observation of the sign in question. It is significant that the name which Dr. Morison proposes is derived from pure Greek, which for more than 25 centuries down to the end of the last has been the recognised official language of nosology. At the same time, the alternative term "paravertebral," although it is a hybrid and a rather long word, is hard to beat as a "finder." But it is now probably too late to discuss a merely academical point. Practically the expression "Grocco's sign" seems to have already received its *imprimatur* in every language. Its brevity is tempting. Moreover, its use is conveniently free from awkward limitations. For instance, Dr. Morison states, and it was established by demonstration on the operating table two years ago, as communicated to THE LANCET in my postscript of July 22nd, 1905,[1] that the "paravertebral triangle of dulness" may be obtained as a result of an intra-abdominal as well as of an intrapleural collection of fluid and that the fluid may be pus just as it may be simple serous effusion. Further instances of this intra-abdominal causation have since then been obtained in a continuous series of cases of ascites. It is therefore essential that these alternatives in diagnosis should not be excluded in any name given to this physical sign which cannot be claimed as exclusively distinctive of intrapleural fluid.

In spite of these reservations, whenever there is obvious absence of any abdominal complication this sign is, in my experience, the most delicate test for the presence of free fluid in the pleural cavity. Neither the x ray nor ordinary percussion can succeed in proving whether after an attack of pleurisy the partial dulness which may persist at the base is due to fibrin, to fibrous adhesions, to thickening and inexpansion of the pulmonary tissues, or to a remnant of fluid. The needle itself is not a final appeal. "Dry tappings" have often occurred in cases diagnosed as of pleural effusion by means of the most trusted methods. Now and then one of these "dry tapped" subjects chances to die, and the post-mortem verdict may justify the physical signs against the needle. Professor Thayer[2] narrates a typically illustrative case—that of a previously aspirated effusion in which a few days later some basic dulness on percussion and the paravertebral triangle were to be got, but no fluid issued from the needle. Had the *crucial test* which I have introduced been applied in that case as in precisely similar cases in

[1] Cf. vol. ii., 1905, p. 216.
[2] Journal of the American Medical Sciences, January, 1907.

which I was able to apply it the presence of fluid might have been determined beyond reasonable doubt. When properly checked by test and counter-test the paravertebral triangle is our finest and apparently our only reliable reagent for the detection of small amounts of free fluid at the base of the pleura and also for some estimate as to its quantity. This method of diagnosis is at the same time by far the easiest and the most rapid to carry out. It is, therefore, likely to be regarded in the future not only as important but as often indispensable.

I am, Sirs, yours faithfully,
WILLIAM EWART.

Curzon-street, Mayfair, W., July 14th, 1907.

THE TSETSE FLY.

To the Editors of THE LANCET.

SIRS,—At a time when so much interest is being taken in the tsetse fly it may be of interest to some of your readers to make known publicly what I have already mentioned to one or two medical friends. About three years ago (when I was travelling commissioner here) I asked some native chiefs if they knew the fly that did harm to their cattle. They said they did but that the fly did no damage *unless it had previously bitten a "red" monkey.* By this I think is meant a "yellow" monkey, not uncommon out here (the natives have no names for different shades of colour as we have), and I never saw a "red" monkey. I give this for what it is worth, but there was no reason why a monkey should have been mentioned any more than a goat unless the natives thought there was some truth in the statement. Westwood ("Introduction to Study of Insects") mentions in a footnote that M. Vallot noticed the existence of an œstrideous larva in a monkey, and possibly it was a zimb. The matter seems worth looking into at any rate.

I am, Sirs, yours faithfully,
J. WINN SAMPSON, F.R.M.S.,
Police Magistrate.

Calabar, South Nigeria, June 14th, 1907.

THE HAMPSTEAD GENERAL HOSPITAL.

To the Editors of THE LANCET.

SIRS,—In your last issue Mr. A. Craske makes a great deal of what is obviously an error in the report of my speech. My assertion was that the income from the invested funds of the North-West London Hospital was under £200 a year; it is actually £170. I am, Sirs, yours faithfully,
E. COLLINGWOOD ANDREWS.

Hampstead, N.W., July 16th, 1907.

THE IMAGINATIVE TEMPER IN SCIENCE.

To the Editors of THE LANCET.

SIRS,—I think homœopaths will have good reason to grumble with your article on the "Imaginative Temper in Science" and to comment on the taste and tact of the writer and also of the Editor in introducing this subject into a leading article and making statements about it which its followers will be unable to controvert, not because they cannot, but because their replies would be boycotted, as this one will be, by the Editor who places as a motto over one of his columns "Audi alteram partem."

I am, Sirs, your obedient servant,
Dewsbury, July 14th, 1907. J. J. G. PRITCHARD.

A NIGHT SHELTER FOR WOMEN AND GIRLS.

To the Editors of THE LANCET.

SIRS,—We beg your courtesy for a little space in your valuable journal for a special appeal on behalf of a cheap and decent night shelter for women and girls which we are anxious to establish in London. The idea is the outcome of hundreds of sympathetic letters received since the publication of "The Soul Market" which gave Mrs. Archibald MacKirdy's personal experiences among the poor and outcast. A lady has promised us £1000 if four other ladies or gentlemen will give or collect like sums.

The plans for the shelter are made on the most economical and practical lines. It is hoped it will, when built and equipped, be self-supporting. The charges will be 2*d.* to 4*d.* a night and this refuge will be the means of helping many a girl and woman back to good citizenship and decent living. We are favoured with Royal sympathy and our committee include the following ladies and gentlemen among others:—The Duchess of St. Albans, Lady Wemyss, Lady Brassey, Lady Evelyn Moreton, Lady Wright, Mrs. Herbert Gladstone, Lord Reay, Lord Curzon, Lord Brassey, Lord Strathcona, Sir W. Wright, Sir Dyce Duckworth, Sir W. S. Gilbert, and the Rev. Arch. Fleming.

Subscriptions may be sent to Lady Brassey, the treasurer of the fund, at 24, Park-lane, London, W.

We are, Sirs, yours very truly,
SYBIL DE V. BRASSEY,
July 12th, 1907. OLIVE CHRISTIAN MACKIRDY.

THE REFORM OF THE ROYAL NAVY MEDICAL SERVICE.

To the Editors of THE LANCET.

SIRS,—The Lords Commissioners of the Admiralty have just issued an order that naval medical officers are not to receive fees for evidence at coroner's inquests or for performing post-mortem examinations on a coroner's order, and that they are to consider this part of their duty as naval medical officers. I ask you to publish this letter because I think that this order may have been issued before their lordships had been sufficiently well advised upon the matter, and also in order that we may hear through your valuable columns the opinions of some of our brothers in the profession. I have always believed that on taking our diplomas to practise as medical men and becoming registered we were, partly by power of the Charter of the Medical Faculty to which we belonged and partly by right as a registered medical practitioner, entitled to certain privileges and at the same time bound by certain restrictions. The right to demand fees from a coroner I have always looked on as a right conferred by being a registered medical man. Surely, if one class of Government officials are to be debarred from receiving these fees that can only be done by Act of Parliament, which would alter the coroner's law, and at the same time surely it should be made applicable to all paid out of the public purse, whether Admiralty, War Office, Local Government Board, or municipal authority.

I regret to say that there is a feeling of uncertainty in our branch of the profession as to whether you would care to ventilate our grievances in your valuable journal owing to pressure from the medical department of the Admiralty, who are not anxious that candidates for the Service should be deterred from joining when they read what is published. As I am sure that you would not close your valuable journal to any true and sensible grievance I send you this letter. There is a widespread view that it is quite time that the suggested reforms by which many were lately induced to enter the Service should be brought in as there is a great desire for improvement by many, not in the direction of pay, rank, or privileges, but in promotion of efficiency throughout the Service. The open disapproval shown to men who endeavour to improve their general knowledge by working at bacteriology has caused much discontent. The present way of distributing hospital appointments which are so few as to be insufficient to enable every medical officer to obtain one during his whole career in the Service and which could so easily be remedied by shortening the term of office; and in order to avoid long journeys and expense to the department in travelling exchanges could be effected every 12 months with men serving in the port or in the fleet attached to the station. The present system of employment of large numbers of medical officers in the home and reserve fleets which all have reduced crews and most of the home fleet ships having two medical officers. These fleets, the home and reserve, have not sufficient work for one man for three ships. It certainly shows the kindness and generosity of the Admiralty in keeping the officers on full pay, but I for one would much rather have efficiency than idleness, as once appointed to one of these ships one has to remain on board daily from 9 A.M. to 1.30 and most ships until 3.30, although there may not be one man sick and there is always one ship flying a medical guard flag which signifies an officer on board all day for emergency. There are many who suggest that in the case of these medical officers they should, after visiting their ship in order to see the sick, be appointed to the hospital as medical or surgical registrars in order to keep

them occupied during the forenoons and provide them with more material for compilation of their Service journal. Our large hospitals at home are all undermanned compared with the fleets and I believe the sole reason is that the hospitals come under a civil money grant which must be kept down.

The room for improvement is great and it is hoped that the favour shown to cricketers, footballers, actors, &c., in obtaining the best billets may soon cease. Lastly, when will something be done for the unfortunate sick-berth staff, the worst paid branch in the service, and who are entirely controlled by the executive and whose training is a farce?

I am, Sirs, yours faithfully,

July 13th. SURGEON, R.N.

*** It appears to us that in the case of sailors, marines, and civil employees of, or connected with, the Navy it would be manifestly part of the duty of a naval medical officer on full pay to attend any court of public inquiry at which his presence is required and make such professional investigations and examinations as may be necessary and we think that for this duty his pay and prospective pension is a retaining fee from the Service. In the case of an officer on half-pay we consider that the Admiralty has no moral or legal right to interfere in the matter. Naval medical officers on full pay are forbidden by the regulations to engage in private practice of any description, but in the event of any accident or sudden emergency occurring in the person of any civilian and in circumstances where the assistance of a private practitioner is not to be obtained, a naval medical officer, if summoned, would have a right to a professional fee. In such cases, which must be very rare, we cannot believe that the Admiralty has either the wish or the power to prevent him from receiving the fee due to him. In our opinion the Admiralty order to which our correspondent alludes is intended to refer only to duties connected with persons, whether civil or military, employed by the Admiralty in some one of its departments, ashore or afloat. We cannot believe that the naval medical officers who have done us the honour to read our columns believe that our prejudices are on the official side, and with some of the points mentioned by "Surgeon, R.N." we have already dealt. His whole letter, however, is an interesting and important document to which we shall later refer.—ED. L.

SOME TURKISH LAZARETS

AND OTHER SANITARY INSTITUTIONS IN THE NEAR EAST.

BY THE BRITISH DELEGATE ON THE CONSTANTINOPLE BOARD OF HEALTH.

(*With Reproductions of Photographs taken by the Author.*)

XI.[1]

YANBO.

Situation and Character of the Town; it is the Port for Medina.—Proposal to put up here a Disinfecting Pavilion.—Difficulty in finding a Suitable Site.—A Floating Pavilion Suggested.—The Water-supply of the Town; its Precarious Character.

THE ports of Yanbo and El Wej are comparatively rarely visited by Europeans, particularly the latter. The former is, after Jeddah, the most important of the Hedjaz coast ports, and will probably always be so, since it occupies much the same relation to Medina as Jeddah does to Mecca. Its distance, however, from the corresponding Holy City of Islam is very much greater than in the case of Jeddah, the journey from Yanbo to Medina occupying some four or five days, whereas that from Jeddah to Mecca can be done on a fast camel in a single night, and rarely takes more than two days. The actual distances are approximately 130 miles and 45 miles respectively.

[1] Nos. I., II., III., IV., V., VI., VII., VIII., IX., and X. were published in THE LANCET of April 27th (p. 1188), May 4th (p. 1251), 11th (p. 1317), and 18th (p. 1389), June 1st (p. 1518), 8th (p. 1607), 22nd (p. 1741), and 29th (p. 1810), and July 6th (p. 51) and 13th (p. 114), 1907, respectively.

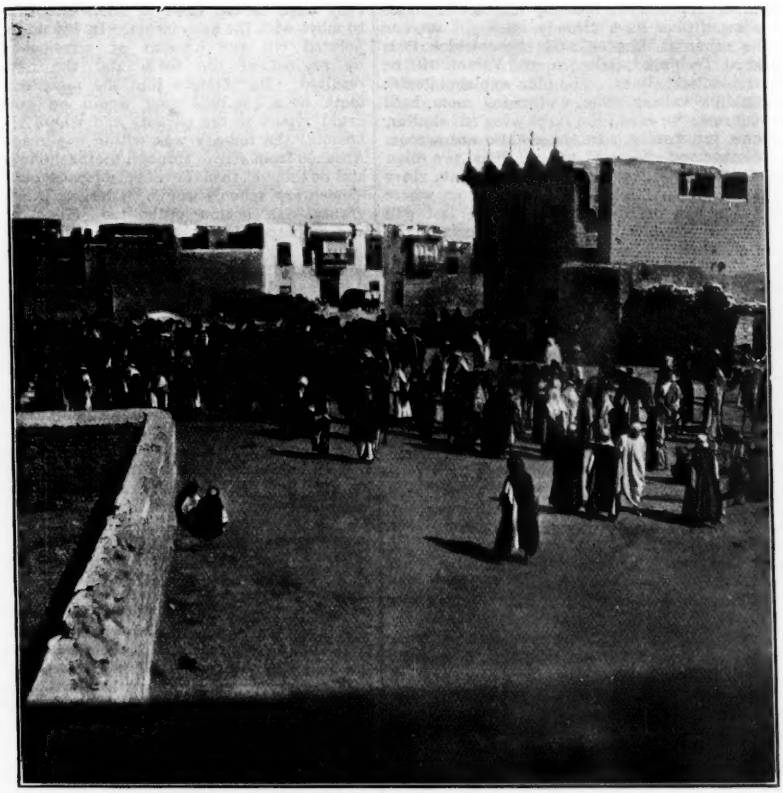
Yanbo is situated on the northern shore of a small bay. It is surrounded by desert and has an arid appearance, with practically no sign of vegetation. Behind, but at a distance of many miles, rises the fine range of mountains called Jebel-Radwa, portions of which are as high as 6000 feet above sea level. The town is not only much smaller but also less picturesque and attractive than Jeddah; it has a far less well-to-do appearance and few of the houses are adorned with those elaborately carved (and no doubt costly) wooden windows and balconies that abound in the larger port. At the moment of my visit there Yanbo was being rapidly invaded by some 10,000 pilgrims arriving by sea from Jeddah. The ship I travelled there by, though only of between 400 and 500 tons, had brought its contingent of over 500 pilgrims and other and larger ships were arriving daily.

Yanbo has the reputation of being a less civilised port than Jeddah; the pilgrims there, it was said (in Jeddah), became more fanatical and less amenable to restraint; the inhabitants were thought to be less accustomed to the sight of Europeans, and it was freely said that landing there, or at El Wej, might involve a certain risk. As a matter of fact, there is, perhaps, a certain small risk in any of these pilgrim ports, less though from the pilgrims than from the native Arabs. The murderous attack made on the foreign consuls in 1895 (when the British vice-consul was killed, and the British consul, Russian acting consul, and a member of the staff of the French consulate were seriously wounded, at a short distance outside Jeddah) is still fresh in the memory of those who have to reside in these ports. That attack was the work of native Arabs and bore no relation to the pilgrimage. So far as my limited experience may be allowed to count, there would seem to be little reason for apprehending danger from the Hajjis themselves, whether at Jeddah, Yanbo, or El Wej. At Yanbo the pilgrims were far more occupied in making arrangements for the start to Medina, in listening open-mouthed to the chanting recitals of itinerant preachers, or in taking a final sea-bath before their desert journey began than in paying any attention to the rare European visitor in their midst. Fig. 38 shows the first caravan of the season forming up in the market-place of Yanbo preparatory to starting for Medina.

The principal object of my visit to this port (in which I was not accompanied by the other members of the Commission) was the choice of a site for a disinfecting station which it is proposed to establish here. There is no doubt that such a station would be a great convenience both for pilgrims and for pilgrim ships. As stated in an earlier article, a considerable number of pilgrims from the north visit Medina before going to Mecca. If there is any measure of quarantine in force against their country of origin they are compelled to go to the Jeddah lazaret to accomplish it. When such measure is confined (as is frequently the case) to a simple "medical visit and disinfection" it bears rather hardly on both pilgrims and ships that they should have to go so far out of their way before pratique is granted them at Yanbo, and in many instances the pilgrims have taken the law into their own hands and under threats of violence have compelled the captain of their ship to go directly to Yanbo. On such occasions they are landed at Yanbo without undergoing any measures at all. It is to meet this unsatisfactory state of affairs that the Constantinople Board of Health has long desired to establish at Yanbo a disinfecting station, where the pilgrims would undergo a douche bath and the disinfection of their clothes and belongings in steam stoves.

The principal obstacle to carrying out this proposal has been the difficulty in finding a suitable site. One or two vacant spaces on the sea-shore within the town walls had been suggested but they were obviously unsuited. It would be impossible thoroughly to isolate the building from the rest of the town were it put up on one of these sites. Another suggestion was to utilise a reef near the middle of the bay which becomes an island at low tide and is known locally as Hobsa Island. At high tide this reef is some feet under water. Finally, and as offering at first sight quite the best position, the island of Abbasieh had been recommended. This is a typical coral island rather further from the town than Hobsa, long, narrow, and crescent-shaped. Its length was found to be 666 metres and its breadth from 25 to 88 metres. At its south-eastern end is the tomb of a certain Sheikh Abbas, from whom the island takes its name. His tomb has some local reputation as the shrine of a saint but it is not visited by the pilgrims. Close

FIG. 38.

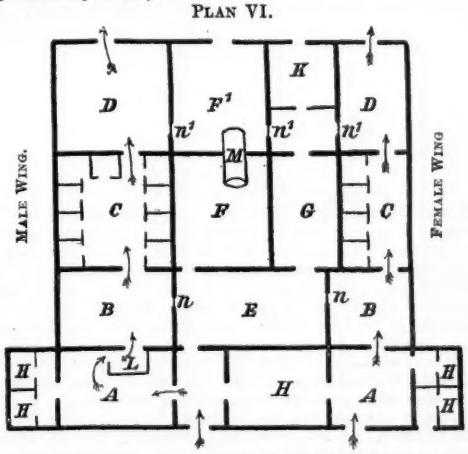


Yanbo: the first caravan of the season preparing to start for Medina.

by are a ruined stone building and some tents occupied by Arab fishermen. This island would be admirably fitted for the site for the disinfecting station but for one fatal drawback—it is surrounded by shallows and reefs for nearly half a mile in all directions; these are more or less dry at quite low tide but are for most of the 24 hours covered with a foot or two of water. In order to land on the island we were compelled to wade ashore for a distance of several hundreds yards. From subsequent exact measurements it was found that were it decided to build here a landing pier the extremity of which could be approached by boats at all states of the tide it would need to be 600 metres long. Hobsa presents almost equal disadvantages; it would be necessary either to raise its level artificially, so that its surface should be above water at all states of the tide, or to put up the building on piles; in either case a jetty of some length would be required. The architect who accompanied me to Yanbo estimated the cost of the pavilion and jetty at Abbasieh at about £T 2900 and at Hobsa at about £T.2300.

In view of the difficulty in finding a suitable site for a building on land the Constantinople Board of Health is now considering the possibility of having a floating disinfection station at Yanbo. The board already possesses one in the Bosphorus. It is called the *Burhanneddin* and is a floating structure, half lighter, half ship, upon which there is a small disinfecting pavilion containing one modern disinfecting stove. It was hoped that it might be possible to send this to Yanbo and it has been thoroughly examined by a committee of experts with that view. Unfortunately, however, they report that the *Burhanneddin* is not in a condition to be towed over the long distance that separates Yanbo from Constantinople and requires, indeed, serious repairs if it is to continue to be employed on the Bosphorus. If, therefore, Yanbo is to have a floating pavilion it will be necessary to build one specially for that port. Steps to that end are now being taken; plans and estimates have been asked for, and a definite decision on the matter may be expected very shortly.

PLAN VI.



Type plan of small disinfecting pavilion as adopted in certain Turkish ports. Scale 1/200. A, A, Waiting rooms. B, B, Undressing rooms. C, C, Douche baths. D, D, Dressing rooms. E, Room for sorting effects. F, Stove room ("contaminated"). F', Stove room ("clean"). G, Room for chemical disinfection. H, Room for employee. K, Store-room for disinfectants. L, Doctor's cabinet for medical inspection of pilgrims. M, Steam disinfecting stove. At n, n the pilgrims' clothes are passed by a turnstile from the undressing rooms to the stove room ("contaminated" side) and at n', n' they are returned, after disinfection, from the stove room ("clean" side) to the dressing rooms.

The disinfecting pavilion, whether constructed on dry land or on a floating barge, will follow more or less closely Plan VI., which is reproduced here in miniature. Two pavilions on the same plan have already been put up, one at Jaffa and the other at Rhodes, and those which it is intended to build at Trebizond, Salonica, and Valona will be on similar, if not identical, lines. The plan explains itself; the left wing contains waiting room, undressing room, bath room, and dressing room for men; the right wing has similar, but smaller, rooms for women. In the middle are a room for sorting the clothes and effects of the pilgrims, two other rooms, "contaminated" and "clean," with the steam stove fixed in the party wall dividing them, and a room where chemical disinfection can be carried out. In the last will be constructed three large cement-lined troughs to hold the disinfecting solutions. The cost of such a pavilion varies in different localities; that at Jaffa cost rather more than £1000 sterling; the estimate for a similar pavilion at Yanbo (on land) amounts to nearly £1300.

Yanbo is said to contain about 5000 inhabitants; for the four hottest months of the year the great majority of the population migrate from the port, which is known locally as Yanbo-el-Bahr ("Yanbo by the Sea") to another town, some six hours distant, known as Yanbo-el-Nakhl ("Yanbo of the Dates"), where, as its name implies, dates are the principal product. The latter town is said to have an excellent supply of water, but at the former water is scarce and dear. Rain falls but rarely; once a year, perhaps, there may be a fall, but sometimes there is complete drought for two or three years. In the intervals the town is dependent for its supply upon the cisterns outside the walls, which in every way resemble those at Jeddah, described in an earlier article. Not infrequently there is a veritable water famine and the price of water becomes excessively high. In 1900, for example, at one moment the garrison of 120 soldiers was paying three Turkish pounds (£2 14*s.*) a day for its water. Some water is also brought into the town on camel back from Oués, some six hours distant; but the Bedouins, it is said, not infrequently attack the water-carriers and capture their asses and camels. Altogether, the conditions under which Yanbo obtains its drinking water can scarcely be regarded as ideal and it may be hoped that the declared intention of the Turkish Government to put up here, as at Jeddah, a distilling apparatus will in truth be carried out.

Yanbo has a kaimakam, or Turkish governor, and representatives of the Ottoman Public Debt Administration and of the Tobacco Régie reside here. There is also a representative of the Grand Sherif of Mecca, known as the Emir-i-Djuheiné, who has considerable powers; he is chief of the tribe to which he belongs and, as claiming descent from the Prophet, is much respected by the Bedouins.

(To be continued.)

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Dental Association.

THE annual meeting of the North Midland branch of the British Dental Association has just been held at the University of Manchester. On July 12th Dr. Hopkinson, the Vice-Chancellor, gave an address of welcome to the members and referred to the closer connexion between the dental profession and the University that had grown up in recent years. There are now a large number of students preparing for the dental profession, and the University has instituted a degree and diploma which have received full recognition. The Vice-Chancellor said that "they wished to make the degree a work not only of practical proficiency but also of a good general scientific education." It seems that the dentists are to be furnished with a subject for controversy, for the retiring President, Mr. C. Rippon, said he regretted that a code of fundamental principles on the subject of provident dental aid had not been agreed upon and that in the meantime a provident institution had already been established in the south. Those who are aware of the troubles and the disputations over the provident medical dispensaries in Manchester will agree that the dental profession should carefully consider the matter and should take up a definite and well-thought-out position. The subject of attention to the teeth of school children was considered by both the retiring President and the new President, Mr. G. O. Whittaker. The former thought that the education authorities were now more fully alive than they were to the need of such attention and were ready to move with the association. In his address Mr. Whittaker pointed out the amount of physical disability caused by neglect of the teeth and the national loss which resulted. He thought that the mere examination of the teeth by a qualified man would do good. The dentist could report to the parents and where there was a dental hospital the remedy was within the reach of poor people. Absence from school through toothache means loss of grants and he thought that the cost of dental supervision in the public elementary schools would be largely provided by increased grants. In cotton mills, too, much loss to employers and employed is caused by "broken time" through "face-ache." He made a suggestion that no doubt will be welcomed by the Manchester and Salford Sanitary Association—namely, that it was desirable that a dentist should be appointed on the committee. However, the dentists and not the Sanitary Association are responsible for this deficiency, as the former have never, so far as I am aware, shown any wish to join the committee of the association.

Killed by Her Hairpins.

An unusual cause of death was inquired into last week by the Blackburn coroner. A woman, 57 years of age, fell backwards downstairs and her head struck a door at the bottom. Several of her hairpins were driven "right into her skull." She died two hours afterwards. No other injuries were recorded. Many of the long, strong pins, with points like needles, with which women fasten on their hats are well known as dangerous weapons, but presumably in this instance the fatal injury was caused by the smaller variety, generally held to be comparatively harmless.

Stockport Infirmary and the Coroner.

It is always to be regretted when adverse comments, even if they be undeserved, are made at a coroner's inquest on the treatment of hospital cases. It is acknowledged that, though an error in judgment is possible, those in charge of the sick and injured are painstaking and humane. Yet whenever an opportunity occurs to question the treatment adopted there seems a tendency to take the most unfavourable view. This is the more to be regretted, because it fosters the idea entertained by the more ignorant of the public, or a large section of them, that hospitals are "places for doctors," as it is often put, "to try their experience on you." An inquest was held on July 9th at Stockport on a man who was at his work in a brickyard when about half a ton of clay fell on him, covering the whole of his body with the exception of the head. He was released and taken to the infirmary and after being treated there was sent home. He was said to have been in great pain while at the infirmary, but the medical officer did not consider him bad enough to be detained. The coroner said that "he should like to have heard what the medical man at the infirmary had to say as to why the man had not been detained there. ..... There was sufficient cause to call for an explanation from the medical officer at the infirmary, and he hoped that such explanation would be forthcoming." The verdict returned was "Accidental death," and the jury regretted that the man was not detained as an in-patient. The tone of the coroner's remarks was not pleasing to the infirmary board, which met the day after, and the chairman said that the house surgeon's version was that the patient was examined by himself and Dr. Milner and that there was little reason why he should have been taken in. The members of the medical staff who were present expressed entire confidence in the senior house surgeon but said that if they had known the history of the case as they did then they would have detained the patient. It is, of course, quite possible that the case would have ended fatally if the man had been detained, but the moral to which it points seems to be that any case at all doubtful should be kept in until its character is fully known.

Weather and Vagrants.

A curious fact testifying to the influence of the weather on various callings came out at the Bury board of guardians last week. Attention was drawn to the fact that the number of vagrants in the workhouse during the past few weeks was 50 per cent. higher than in the corresponding period of last year. The chairman said "this was remarkable considering the good trade that prevailed in the district." One member suggested that the bad weather affected outdoor

labour. It may be feared, however, that the majority of the tramps are only waiting to resume their summer tour as soon as the skies are propitious.

Manchester Water-supply.

Manchester is a great consumer of water and the chairman of the waterworks committee feels it his duty from time to time to speak against waste and to draw attention to the prospective insufficiency of the supply. For some time, however, there has been too great a supply for the Longdendale reservoirs and during three days of last week a total of no less than 126,000,000 gallons were run to waste. The quantity that has to be run into the river daily to supply the mills lower down is only 14,000,000 gallons. It was reported on July 11th that there was a sufficient supply for 133 days with a daily rate of consumption of 40,000,000 gallons. It is a curious coincidence that on Jan. 1st both of this year and of last year the supply was sufficient for the same number of days. The daily consumption, however, was calculated on 38,000,000 gallons instead of on 40,000,000 as now.

July 16th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

University of Liverpool: Semi-jubilee Celebrations; Graduation Ceremony.

THE three days' programme of social functions organised in celebration of the twenty-fifth anniversary of University College, now the University of Liverpool, was inaugurated on July 11th by a reception at the University, which was attended by about 4000 guests. The arrangements were admirably planned and carried out, conducing to the enjoyment of the visitors. The entrance hall of the Victoria building, the archway of the medical school, and the entrance to the zoology building were used simultaneously for the reception of the guests, who were welcomed by Mr. E. K. Muspratt (Pro-Chancellor and chairman of the Council), Vice-Chancellor A. W. W. Dale, and by the treasurer (Mr. Hugh Rathbone). Refreshments were served in various parts of the building and there was music in the quadrangle by the Liverpool Constabulary Band and in the Arts Theatre and Zoology Museum by the Ross ladies' orchestra. Interesting scientific lectures and experiments proved most attractive and the exhibits were conveniently placed for easy inspection. Academic dress was worn by the graduates. The scene was a most animated one and the reception was one of the most interesting ever held in Liverpool. In continuance of the celebrations the Lord Mayor held a reception at the town hall on July 12th and in the evening of the same day there was a students' ball. But the most important function was the University Association's dinner held at the Adelphi Hotel on July 12th, over which Vice-Chancellor Dale presided. The company included the Lord Mayor of Liverpool, the Lord Bishop of Liverpool, Sir Oliver Lodge, the Rev. Dr. Rendall, the first Principal of University College, Liverpool (now head master of Charterhouse School), Professor Bradley, the Master of Magdalene College, Cambridge, Professor W. Ostwald (Leipsic), Sir Henry E. Roscoe, Professor W. Osler, Sir John Murray, Sir William Ramsay, Professor A. R. Forsyth, and Sir John Brunner, Bart., M.P. Sir Oliver Lodge proposed the toast of "The University" and gave an interesting account of the foundation of University College (now the University of Liverpool) of which he was professor of physics for 19 years. Professor MacCunn, in responding, said that he would not attempt to estimate what the University of Liverpool owed to the scholarly devotion of Rendall, the insight of Bradley, the brilliant gifts of Forsyth, the eloquence and wit of Raleigh, the indomitable scientific fidelity and enterprise of Gotch, and not least to the large-hearted scientific genius of Sir Oliver Lodge. The Vice-Chancellor proposed "The Guests" in a humorous speech, which was replied to by Sir Henry Roscoe, Professor Forsyth, and Professor Osler.—The graduation ceremony, held at St. George's Hall on July 13th, was an occasion of special interest and importance; several honorary degrees were conferred by the Chancellor, the Earl of Derby, on men distinguished in arts and science, among whom for the degree of D.Sc. were Professor Francis Gotch, Principal Sir Oliver Lodge, Professor Osler, Professor Forsyth, Sir John Murray, Professor Ostwald, Sir William Ramsay, and Sir Henry Roscoe. The degree of LL.D. was conferred on Sir Edward Lawrence and Mr. Muspratt (both Pro-Chancellors of the University) in acknowledgment of their pioneer work in and for the University. At a luncheon which followed the graduation ceremony an oil portrait of Mr. Muspratt, which had been subscribed for by members of the University club, was formally presented to the club, and in the afternoon a garden party was given by Sir John Brunner in his charming grounds at Druid's Cross, Allerton. In the evening the students wound up the commemoration festivities with a supper at the Yamen Café. Altogether the occasion was a memorable one.

Liverpool School of Tropical Medicine.

Sir Alfred Jones presided at a dinner given on July 15th in the University Club, Liverpool, for the purpose of bidding farewell to Dr. Barrett and Dr. Yorke, members of the Black Water Fever Expedition, who are going out to Africa, and to Dr. J. L. Todd, late director of the Tropical Research Laboratories at Runcorn, who is returning to Canada. Sir Rubert W. Boyce, in proposing Dr. Todd's health, said that coming from Canada he had been willing to work in every part of our Empire, and while giving his time and talents he had also contributed something like £200 per annum to the Tropical School, and, more particularly, to the institution at Runcorn. Sir Alfred Jones having also spoken. Dr. Todd, in response, said that very little gratitude had been displayed for the work of Dr. Dutton who died whilst engaged in research work, only one-quarter of the sum required to establish a professorship in his honour having been collected. The Bishop of Liverpool proposed success to the "Black Water Fever Expedition." Professor Ronald Ross supported the toast, which was acknowledged by Dr. Barrett and Dr. Yorke. On the motion of the American Consul, the toast of "The Study of Tropical Medicine" was honoured, and was responded to by Colonel D. Bruce, R.A.M.C., who alluded to the recent successful work in connexion with Mediterranean fever.

July 16th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Prevention of Cruelty to Children.

THE Glasgow district committee of the National Society for the Prevention of Cruelty to Children reports that during 1906 the number of cases of alleged cruelty dealt with by the inspectors was 1605, being an increase of 78 on the previous year. The number of children affected was 4679, as against 4411 in 1905. The number of children received and cared for in the shelter was 549. The ordinary income was £1281 and the ordinary expenditure £1271. Legacies amounted to £323, and £2745 were received in response to a special appeal to the public.

Action against a Druggist.

In the Court of Session last week a pharmaceutical chemist in business in Dundee was sued for £500 damages in respect of injuries said to have been sustained by a girl, aged five years. The child was suffering from ringworm and it was alleged that the druggist advised the application of butter of antimony to the scalp and supplied a bottle the contents of which were applied, with the result that the girl lost all her hair and her health was injured. Lord Johnston assoilzied the defender with expenses. He stated that he was satisfied that the defender warned the father of the child that he had no personal knowledge of the drug being used for the purpose in question and that he warned him that it must be applied carefully and sparingly.

Medical Appointments under Govan School Board.

As a result of a conference with Dr. W. Leslie Mackenzie of the Local Government Board in May the Govan parish school board has appointed ten medical officers at a salary of £50 each per annum to assist in the work of medically superintending the children. The new officers are also to advise the board as to the ventilating, heating, lighting, and cleanliness of the schools and to report any insanitary conditions discovered. By means of lectures, demonstrations, or otherwise the teachers are to be instructed in the method of recognising the common ailments and defects of school children, in the practice of first aid for school accidents, in the general hygiene of the school and the class-room, and in the physiological principles that underlie physical training. There were 66 applicants for the posts as advertised.

Funeral of Sir William T. Gairdner.

On July 2nd the remains of Sir William T. Gairdner were interred in the family burying-ground at the Western Necropolis, Glasgow. It was peculiarly fitting that the principal ceremony should take place in the Bute Hall of the University of Glasgow, where for nearly 40 years he filled the chair of practice of medicine. Among those present were the members of the senate and University Court, representatives from the corporation of Glasgow, the general council of the University, the Faculty of Physicians and Surgeons, Glasgow, and the University of Edinburgh.

The Trial of Purves for Shooting Dr. R. Carswell.

The last stage of the "Purves insanity" episode took place last week when Purves was sentenced to seven years' penal servitude. It will be recollected that nearly three years ago Purves was certified insane by Dr. Carswell and Dr. Marion Gilchrist. On being liberated from the asylum he brought an action of damages for £10,000 against each of them, but the case was decided against him in the Court of Session. Two months ago he shot at and wounded Dr. Carswell with a revolver in one of the public streets of Glasgow, his avowed object being not to kill but to bring Dr. Carswell into the witness-box. At the trial the course of events was somewhat unusual, the Advocate Depute for the prosecution trying to prove the prisoner insane; while, on the other hand, counsel for the defence, acting under the prisoner's instructions, maintained his sanity. Medical experts were called on both sides, the evidence being very conflicting, but eventually the jury decided in favour of his sanity, with the result that a sentence of seven years' penal servitude was conferred. The whole incident from beginning to end has served to demonstrate the unsatisfactory position of medical men with reference to the granting of certificates of insanity.

Enteric Fever at Peterhead.

Several meetings of the town council of Peterhead have been held to consider the situation caused by the large number of cases of enteric fever, and at a recent meeting Provost Leask gave a summary of what had been done since the outbreak of the fever. From this it appears that on June 8th an emergency meeting of the public health committee was held at the request of the medical officer of health who reported that a serious outbreak of enteric fever had taken place in the burgh. The sanitary inspector at the same time submitted a report of analysis of the water-supply from (1) Forchill; (2) Grange; (3) chamber near Downiehills; (4) Downiehills Burn; (5) Cairncatta supply; and (6) Wellington supply. In consequence of these reports the inspector was instructed to make further examinations of these sources of supply. The inspector at the same time reported that the sources from the Downiehills Burn and chamber had been cut off. The committee again met on June 12th, when the result of the sanitary inspector's further analyses was intimated and in consequence a notice was sent to all the inhabitants warning them to boil all water used for drinking or domestic purposes. At a meeting of the water committee held on June 15th it was resolved to run off the water in the Grange reservoir and to give the latter a thorough clean out. The public health committee again met on June 26th, when it was reported that the water from the Forchill reservoir, though improved, was still of bad quality. On June 28th the public health committee again met for the purpose of providing additional accommodation required for the increased number of cases. It was decided, if found necessary, to make arrangements for a temporary building in the hospital grounds and to endeavour to secure accommodation in the Strichen hospital. At a meeting of the town council on July 1st the medical officer of health was authorised to procure an assistant, and among other things it was arranged that the fish-curers should be asked to use salt water for cleaning their fish and that the police should be asked to direct their attention to any waste of water. On July 5th a special meeting of the town council was held for the purpose of meeting Dr. F. Dittmar, medical inspector of the Local Government Board, and of considering the measures to be adopted in connexion with the outbreak of fever. At this meeting a telegram was read from the Local Government Board stating that both the Board's medical inspectors and the burgh medical officer of health were prepared to certify that one of the reservoirs was typhoid infected—this being the Forchill reservoir from which no water was at present being taken. Analyses of water from various sources were submitted. Dr. Dittmar was then called in and heard very fully regarding the conditions of the water-supply and the methods to be adopted to combat the epidemic. Thereafter the position of matters was fully discussed and it was resolved:—

1. To close the Forchill reservoir until further consideration by the town council, the reservoir not again to be used for domestic purposes.
2. To endeavour to go on with the supply from the Wellington and Cairncatta sources; if found insufficient the council to arrange for an intermittent supply.
3. To issue a further warning to consumers to boil water before drinking or using for domestic purposes.
4. To boil water at several parts of the town for public uses.
5. To warn the public against using the water from the Cairntrodlie, Blackhouse, and Washinghouse Green wells without first boiling it for at least ten minutes.

The epidemic shows signs of abating during the last few days, to judge from the number of notifications. So far 170 cases have been notified, but a large number of these have been very slight. The temporary hospital is now ready for occupancy and the most urgent cases are being removed there. 42 cases are already in hospital and all are making good progress. Several cases have been removed to Strichen Hospital. About a dozen deaths have so far been attributed to the malady. The fishing community has escaped almost entirely so far from the fever. Surface water is used at Peterhead to augment the supply when it appears likely to fall short of the demand and the recent heavy rains washing well-manured fields are probably responsible for the epidemic. I understand that the Admiralty and Prison Commissioners have very generously consented to allow the Peterhead town council to take the surplus from their water-supply. It is expected that this supply will run from 30,000 to 40,000 gallons per day. The work of connecting the supply with the pipes of the town supply has almost been completed. The water is of undoubted purity as it goes through a process of filtration. This additional supply enables the town council to cut off some further doubtful supplies.

July 16th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal College of Surgeons in Ireland: Royal Visit to Dublin.

THE address from the Royal College of Surgeons in Ireland (represented by Sir Henry R. Swanzy, Mr. John Lentaigne, Sir Charles A. Cameron, Sir Arthur Chance, and Mr. G. F. Blake, Registrar) was the following:—

We, the President, Vice-President, and Council of the Royal College of Surgeons in Ireland, desire to avail ourselves of the presence of your Majesties in Dublin to offer the assurance of our allegiance to your Majesties and our respectful and loyal welcome on the occasion of your gracious visit to Ireland. It is the object of our Royal College to provide highly qualified surgeons who may serve their country in the Naval or Military Services, as well as those others who will devote their lives to the care of the sick in the civil community. Knowing the deep interest your Majesties take in all that concerns the welfare of your subjects and the progress of surgical science, we feel confident that our Royal College may rely on your Majesties' favour in our continued efforts to secure the efficiency of those who seek our diplomas. Signed on behalf of the Council.

HENRY R SWANZY, President.
JOHN LENTAIGNE, Vice-President.
CHARLES A. CAMERON, Secretary.

His Majesty gave the following general reply to all the addresses and handed a copy of it to each deputation:—

GENTLEMEN,—I thank you for the hearty greetings and cordial welcome which you have tendered to the Queen and myself, and I accept with sincere gratification your loyal assurances of devotion to my Throne and person.

I am pleased to hear of your success in your various spheres of public duty, and I trust that a blessing may continually follow your labours for the prosperity of the country and the welfare of the people.

I regret that time does not admit of an individual acknowledgment of your addresses, but I ask you to accept from the Queen and from myself an assurance of our gratification at your kindly reception of us and of our hearty sympathy with you in your efforts for the good of the various communities which you represent.

Health of Belfast.

It was reported to the public health committee at the weekly meeting on July 11th that for the week ending July 6th there had been six cases of cerebro-spinal meningitis, as against 11 for the previous week. Since the last meeting of the committee (July 4th) only three cases were notified, as against five in the previous week, and for the week ended Saturday, July 6th, five deaths were

notified to the Registrar-General, as compared with six during the previous week. Of 72 cases in Purdysburn Fever Hospital, 35 were suffering from "spotted" fever and one death only occurred from that disease during the week. The general death-rate for the week ended July 6th was 20·3, which is very high for this time of year.—The Belfast Health Commission resumed its sittings on July 15th, when, after three officials of the water board (the consulting engineer, engineer, and superintendent of works) and a builder, who was examined as to inspection of a conduit, had given evidence, Mr. A. H. Bates, K.C., gave a long address on the evidence put forward in reference to the water-supply of the city, setting himself to face the important issue as to how far the water system was responsible for the typhoid fever outbreaks in Belfast. He said that the presence of typhoid fever was only part of the health problem in Belfast, the striking fact being the general high death-rate. He showed that typhoid fever was both endemic and epidemic in Belfast and as endemic was startlingly high in its incidence, and yet there was no suggestion that it was due to the water-supply. As to the epidemic form of typhoid fever being due to the water-supply, he maintained that the theory that two water catchment areas (Stoneyford and Woodburn) 20 miles apart, with different physical conditions, different histories in point of health, and different features, could recurrently, periodically, and concurrently be affected in the same way was inconceivable. Proceeding, Mr. Bates dealt fully with Professor J. Lorrain Smith's evidence and report and quoted from him that in a certain area in Belfast (occupied by the artisan classes) the smoke test showed that 37 per cent. of the drains were defective, and in another area 73 per cent. of the drains were wrong, the point being that where typhoid fever was found in such areas as these sanitary defects at once came into operation for the purpose of spreading the disease. He concluded by speaking highly of the water board and deprecated any suggestion of extending the Mourne scheme faster in its development than was contemplated by the original promoters. Mr. H. A. Cutler, city surveyor and engineer, was then examined as to the Belfast main drainage scheme.

July 15th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Pellagra and Insanity among Arabs.

AT a meeting of the Academy of Medicine held on June 25th M. Marie said that an examination of insane Arabs suffering from pellagra in the Abassech Asylum showed that genuine pellagra was almost constant among them just as among the population from which they were derived; they were therefore pellagrous persons who had become insane. Some mental disorders following pellagra owed their origin to it, and on that account presented typical psychological characteristics associated with the physical symptoms of pellagra. Certain paralytic forms of insanity occurred in pellagrous individuals and confirmed the opinion of Baillarger who maintained that pellagrous paralysis might assume a form clinically and pathologically identical with general paralysis of the insane. The diseases were, however, not the same and M. Marie considered that general paralysis of the insane was a syphilitic manifestation. The two forms might be combined—that is to say, cases were known in which Arabs suffering from general paralysis were both syphilitic and pellagrous.

The Action of Salts of Lime on the Heart.

Some experiments described by M. Loeper and M. Boveri at a meeting of the Society of Biology held on June 22nd served to confirm the well-known opinion that salts of lime exercised an exciting effect on the cardiac muscle. These observers have noticed in the human subject an increase of the arterial pressure and a slowing of the heart beats after the ingestion of chloride of calcium. On the other hand, they found a notable increase of the weight of the heart in rabbits to which there had been given for a month doses of one or two grammes of chloride of calcium and two, four, or even eight grammes of carbonate or phosphate of calcium. They, moreover, obtained evidence that the hypertrophy of the heart arising in this way was accompanied by an accumulation of calcium salts in the cardiac substance.

Lead Poisoning.

At a meeting of the Academy of Medicine held on July 2nd M. Meillère presented an important communication on lead poisoning regarded from the chemical point of view. The conclusions arrived at from this aspect were very similar to those which were formed on purely clinical grounds. It was shown that lead was a poison attacking specially in the nervous system the grey substance of various centres, and in the sanguineous system both the blood corpuscles and the organs or structures in which they originated—namely, the liver, the spleen, and the bone marrow. By its long retention in the affected tissues and the slowness of its elimination the lead interfered with nutrition, disturbed the normal relations of the mineral constituents of the body, and brought about a kind of premature senility. These disastrous effects attained their greatest development in degenerates of all kinds whose constitution rendered them unusually susceptible to the poisonous effects of lead. M. Meillère has investigated the elimination of lead by the hair of various parts of the body and by the nails. He also discussed the question of the normal presence of lead in the tissues and concluded with a description of the best methods of conducting researches on the toxicology of lead.

Treatment of Cancer of the Stomach.

At a meeting of the Société de l'Internat des Hôpitaux de Paris held on June 27th M. Doyen showed some cases of cancer of the stomach treated by his method. The total number of his successful cases is now 16. Some were treated as soon as the first definite symptoms appeared, whilst others were inoperable. As a result of the treatment the vomiting and the cachectic colour of the skin disappeared and the appetite returned. Among the 16 patients pylorectomy was performed in one case and simple gastro-enterostomy in four cases; the remaining 11 patients were not operated on. It was mentioned that four patients were treated respectively five years ago, four years ago, three years ago, and two and a half years ago. In two cancerous patients a biliary obstruction also disappeared. M. Doyen has also during the last few months successfully treated cases of cancer of the œsophagus, cancer of the rectum, cancer of the larynx, and *cancer en cuirasse* of the two breasts with peritoneal invasion. He attaches great importance to the early use of vaccine.

Obituary.

Professor Grancher, who on account of his health has for many years past been compelled to winter in the South at Cambo, died in Paris on July 13th. He was born in 1850. Having entered the medical profession he presented for his doctor's degree a thesis entitled, "L'Unité de la Phthisie." Since that time he chiefly concerned himself with researches into tuberculosis. He was one of the first to make laboratory experiments upon anti-tuberculous "vaccination," and he also for some time worked with Pasteur. In 1892 he became a member of the Academy of Medicine. His later years were devoted to the service of a society founded by himself for the protection of children from tuberculosis (*préservation familiale contre la tuberculose*).

July 16th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Garibaldi and "Claims to Priority."

THE unselfishness of the Liberator, was, morally speaking, his most distinctive feature, fraught with lessons to his compatriots and to his contemporaries of all nationalities, not only in the military sphere but in every field of coöperative endeavour. The "fruits of victory," the "spoils of war," the "glory" that awaits success had no fascination, no meaning for him. In 1860, when under the walls of Capua, to which he was laying siege, he was importuned by Graziotti, one of his officers, in these words: "General, let me launch a couple of shells at the citadel and it will surrender immediately. To-morrow the Piedmontese army will come and they, too, will bombard the stronghold and tell the world that they have taken it." "Let them say it," answered the general; "we have not come here for glory." A characteristic remark! At Montevideo, after the victory of the Salto, he refused from the struggling Commonwealth every recompense or honour, declining even the proffered rank of

general from the Montevidean War Office, adding, 'Such distinctions would only oppress me." Looking simply to the triumph of the cause he had at heart—the good of his fellow man—he was quite indifferent to the "glory of victory," so long as the victory was gained. Such self-abnegation has its lessons, as I have said, not only in the military sphere, but even in those of science, of fine art, and of literature. The jealousies among the votaries of these pursuits—jealousies not confined to his compatriots, among whom, it is true, they are all too manifest—are in strong contrast to Garibaldi's noble freedom from the *amour propre*, the self-assertion, in which these jealousies have their source. Science, nature study, in which the attainment of truth is the one real object to aim at, are prolific in examples of the ignoble jealousies indicated, claims to priority in this or that "discovery" or even "observation" being loudly advanced and as loudly met by counterclaims, till the controversy from a personal achieves an international significance. Some 30 years ago persistent attempts were made to assert for Cesalpino a "priority" over Harvey in the discovery of the circulation—attempts which did not survive the demonstration by Dr. George Johnson of King's College that the discovery, gradually led up to, belonged ultimately to the English anatomist. Again, the counter-claims of Adams and Leverrier to the discovery of the planet Neptune—claims, be it said, which were advanced not by the discoverers themselves but by eager *chauvinistes* of British or French nationality—have ceased to be heard now that it is recognised that both astronomers, well-matched in scientific aptitude, and working on the same lines, were bound about the same time to reach the same terminus. Such coincidences tend to become more and more frequent as the interdependency of work in the same field becomes more and more real and effective. "Nothing in this world is single," says the poet, "all things by a law divine, in one another's being mingle," till claims to "originality" or "priority" will appear not only ignobly egotistic but in every sense unphilosophic.

The Treatment of Pulmonary Tuberculosis: a New Method.

Dr. Carlo Forlanini, professor of clinical medicine in the University of Pavia, has proposed a treatment for pulmonary tuberculosis which seems to have other merits than its undoubted novelty. Cases of real arrest of the slow destruction of the lung, while not so rare as is supposed, he would ascribe not to the medical treatment but to a fortunate resumption of strength on the patient's part, sufficient to react against the disease. In two lectures recently delivered before a professional audience at Milan—lectures embodying the results of 20 years' study and experience, clinical and experimental—he gave a pathological history of the disease in its inception and progress, and endeavoured to show that the characteristic cavities (*vomicæ*) are the result of other causes than those consequent on the bacillus of Koch—may, in fact, be the outcome of "all those micro-organisms which can produce catarrh in the interior of the pulmonary alveoli." This catarrh, he proceeds to show, consisting of a mass of dead cellules, of degenerate elements, and of different species of micro-organisms, fills the pulmonary alveolus in the act of respiration under pressure of the air which seeks to enter the said alveolus, and thus, though relieved by expectoration, interposes a serious obstacle to the sanguineous circulation. Thanks to this obstacle and to the consequent denutrition of the tissues the walls of the alveolus become enfeebled until they are destroyed and give place to a primary small cavity which by the same mechanical process enlarges into a cavity or cavities still greater. The conditions under which a cavity is formed consist in the pulmonary function—that is, in the mobility of the lung itself. Further, he contends that while a lung slightly diseased from tubercle gets well if it performs its function duly a lung in process of destruction cannot get well unless complete immobility be induced. A clinical case of frequent occurrence illustrates this law. When around a tuberculous lung there is formed a copious gathering of liquid (as happens in pleuritis), so that the lung remains shrivelled and immobile, and when this liquid continues for a sufficient time the affected lung loses its functional power but it gets well. Now (says Professor Forlanini) the method of cure I propose is precisely this—to introduce into the thoracic cavity not a liquid, because the operation would be difficult, even dangerous, but a gas, that gas which is at once inert and innocuous, azote. This, we know, is prepared by a very familiar chemical reaction in a glass apparatus and is introduced into the thoracic cavity by a long fine needle. The pressure of the gas is so regulated as to be a little higher than the pressure of the atmosphere, so as to overcome the tendency of the lung to distend. By this means when the thoracic cavity is full of gas the lung is pushed up, shrivelled, and reduced to an inert mass, thus preventing the disease from pursuing its fatal course. The walls of the great cavities come in contact with each other; all that material of the disintegration of the tissues in which the most varied microbic forms were germinating is squeezed out; the connective tissue which constitutes the elastic support (*sostegno*) of the lung gets the ascendancy, and so the entire diseased part becomes a mass of cicatrices. We are not to suppose, however, that all this happens after a first introduction of the gas. The pleura has great absorbent power; the azote, though in less degree than other gases, tends sooner or later to disappear and matters would resume their former condition if the gas is not re-introduced in sufficient quantity. The treatment, therefore, is long, lasting for months, but finally, either because the absorbent power of the pleura is minimised or because the danger of the lung's distending anew becomes less probable, we may consider the cure as complete. Professor Forlanini was able to produce clinical proofs of the efficacy of his treatment and in the discussion which followed to make out a "good case" for giving his method a trial.

Are Medicines Groceries?

It would seem so according to the Venetian Court of Appeal. Certain pharmacists in Venice sued three grocers of that city for having, in contravention of the "Codice Sanitario," sold "specialità medicinali" (special medicines), and the Pretore Urbano (city sheriff) found the said grocers guilty and fined them in 200 lire (£8), with an order to compensate the pharmacists for the losses sustained. The grocers appealed, and on July 11th, after a long discussion, judgment was given in their favour, the court affirming that grocers can sell all "specialità medicinali" which have been supplied to them by the houses which manufacture the same. Evidently the article of the "Codice Sanitario" dealing with the question requires revision!

July 12th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Lowered Gastric Secretion.

AT a recent meeting of the Medical Society Dr. Aldor read an interesting address on Lowered Gastric Secretion, in the course of which he said that the view recently advanced that the gastric secretion can be dispensed with did not commend itself to him. The presence of the gastric juice in the duodenum stimulates indirectly the pancreas and it regulates the movements of the stomach. Dr. Aldor referred to a condition where the gastric juice is absent without apparent cause. Depression, neurasthenia, and hysteria produce suppression of this secretion; diseases of the brain, spinal cord, as well as arterio-sclerosis, are factors in bringing about a defect of secretion of the stomach. The absence of the hydrochloric acid in acute inflammatory conditions of the stomach is a wise provision, as if present it would cause considerable irritation to the mucosa. Insufficient gastric juice at times produces diarrhœa and particles of undigested food, especially proteins, are found in the stools. It is injudicious, in Dr. Aldor's opinion, to give hydrochloric acid in carcinoma of the stomach, as the acid is a source of irritation. Poor gastric digestion will bring about poor intestinal digestion. No two individuals can be considered to require the same amount of hydrochloric acid, so that there is no standard as to the amount of acid necessary for digestion in all people. Dr. Aldor holds that the stomach can be educated to do substantial work; therefore a mixed diet should be given and it is not to be taken in small quantities at frequent intervals, although in some instances it is necessary to give the meals frequently. He is inclined to think that a more normal digestion is obtained with pyloroplasty than with gastro-enterostomy.

Radiotherapy.

At the last meeting of the Dermatological Society considerable attention was devoted to the present status of radiotherapy. Broadly speaking, the view of the meeting

was that there is no longer any question as to the specific field of action of the Roentgen ray in all forms of acne, lupus, eczema, psoriasis, pruritus, tinea, sycosis, mycosis fungoides, senile keratosis, venereal condylomata, and hyperidrosis. Among the skin diseases that may be classed as erratic are pigmented vascular nævi, hypertrichosis, and acne rosacea. Of the first mentioned, about 18 per cent. are cured and about 28 per cent. are improved. It was stated that 80 cases of epithelioma involving the skin only were treated with no recurrence. When the tumour is situated at a mucocutaneous junction it is well to have the glands removed after a period of quiescence has been brought about by the x rays. Justus followed this method in several cases with no recurrence after two years. He considered the Roentgen rays sufficient treatment in the great majority of cases. The knife should be used only in cases where the tumour is situated favourably for radical removal. In cases having the characteristic odour he invariably anæsthetises the surface and by means of the galvanic current drives into the tissue for a prolonged period of time zinc and mercury ions, following this medication with the Roentgen rays after the separation of the slough. 18 cases of carcinoma treated vigorously with the Roentgen rays were cured. In 14 cases the tumours and enlarged glands disappeared completely; in four they ceased to grow. He considered that all primary cases should be treated with the rays, excluding the knife. He does not believe in the existence of a case of sarcoma that cannot be markedly benefited by a prolonged mild radiation from an old hard tube, well coated with aluminium, the thickness depending on the individual circumstances existing in each case.

Communicability of Cancer.

At the Cancer Congress held lately in Budapest Dr. Kaczvinsky read a paper on the Communicability of Cancer. He is of the opinion that cancer is a communicable disease. The reasons for this are, first, its great increase in modern times; the fact that cancer is most frequent where population is densest—that, for instance, it is more common in direct ratio to the density of the population in the poorer districts in Budapest than in any other; that it seems to follow certain watercourses; that it becomes connected with houses; and that so many cases that are seen by surgeons can be readily traced to possibilities of communication. For instance, it is not unusual to find cancer occurring in those who are closely associated with one another. Dr. Kaczvinsky has recently seen a cancer of the tongue in a workman who had been with another workman suffering from the same disease. Some observers have seen it in two brothers who were living in intimate association, in a brother and sister where one had nursed the other, and in a wife and husband who had been very much together.

July 10th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Cholera in Calcutta.

A RECENT report by Dr. T. Frederick Pearse supplies a striking instance of the conveyance of cholera by unfiltered river water. In an analysis of 1340 deaths from cholera in Calcutta during the first three months of the present year it was found that only 7·66 per cent. of the total cholera deaths occurred among Mahomedans, although this community forms 28 per cent. of the total population. On the other hand, the incidence among Hindus was correspondingly severe—the Hindu deaths amounting to 91·9 per cent. of the total, while the Hindu population is only 66 per cent. of the total. The number of Hindu females attacked was remarkably high in proportion to their numbers—no less than 40 per cent. of the deaths occurring amongst them, while in numbers they form only 23 per cent. of the total population. Hindu males were attacked at the rate of 51·3 per cent. of the total, while in numbers they only constitute 43 per cent. of the total population. In a list of 16 specified castes the greatest sufferers were the Khandait, Brahmin, Teli, Boisnab, Bania, and Shaha castes. A table annexed to the report shows a great preponderance of cholera deaths in the municipal wards which border either on the river or on the branch of it called Tolly's Nullah.

The Calcutta Hospitals.

The annual report concerning the Calcutta hospitals has just been issued. They are 17 in number and received 23,136 in-door patients and gave relief to 271,078 out-patients during the past year. This is a considerable increase, but some two or three do not seem to have progressed. No less than 44,746 cases were treated for malaria and 212 cases of opium poisoning were attended to. Of the total of patients 58·33 per cent. were men, 19·78 per cent. women, and 21·89 per cent. children. The total income of these institutions was Rs.14,48,158, of which the Government contributes Rs.9,34,743, or 68 per cent. The paying patients brought in Rs.98,149, but the public subscriptions amounted to only Rs.41,910 (less than £3000). Considering how largely the natives of India benefit by these institutions the public subscriptions are very meagre. The expenses of up-keep amount to about 10 lakhs (roughly £67,000). Some of the hospitals have been vastly improved and brought into line with modern requirements.

The Madras Medical College.

In his report on the work of the Madras Medical College during the session 1906–07 Lieutenant-Colonel W. B. Browning, I.M.S., C.I.E., the principal, states that there were 327 students on the rolls during the year, showing a decrease of 32, as compared with 359 in the previous year. Of the 327 students, 206 (of whom nine were females) attended the College department, where 103 studied for the qualifications of M.B. and C.M., and 69 for those of L.M.S. The results in the final M.B. and C.M. examinations were much better this year than in the two previous years, there being 60 per cent. of passes, as compared with 46 per cent. in the session 1905–06. In the apothecary department there were 66 students. The 55 remaining students of the total 327 either attended the chemist and druggist department or the sanitary inspectors' class or were hospital assistants undergoing post-collegiate training. As regards dental surgery, 30 lectures were delivered during the session and practical dentistry in the out-patient department of the General Hospital was available. With respect to race, caste, and sex the 327 students were classified as follows: Europeans and Eurasians, 57 males and 22 females; native Christians, 44 males and six females; Brahmans, 110 males; non-Brahmans, 78 males and three females; Mahomedans, five males; and Parsees, two males.

June 26th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Hospital Affairs.

THE annual meeting of the friends and supporters of the Royal Prince Alfred Hospital, Sydney, was presided over by His Excellency the Governor of New South Wales and was largely attended. The report showed that the number of patients admitted during the year 1906 was 4297, and that the total number under treatment was 4545. Of these 2822 were discharged recovered, 801 relieved, and 248 unrelieved; 380 died, and 294 remained in the hospital on Dec. 31st, 1906. The number of beds in the hospital was 318, and the average number of patients resident daily was 295. The number of attendances in the out-patient and casualty departments was 50,315, and the number of individual patients in these departments was 12,579. The total amount received from contributing patients during the year was £2913 as compared with £2359 in 1905. The financial statement for 1906 disclosed a deficiency of £3843, brought about by the increased number of beds available, and in carrying out works recommended in the secretary's report. The surgical operations performed again showed a large increase, the total number for the year being 2749, against the previous highest number recorded of 2337. It had been necessary to add to the general surgical and medical staffs owing to the increase of work from the opening of the new pavilion. The honorary staff now numbered 29 members. As an outcome of the establishment of the medical gymnastic department the massage work of the hospital had been extended, and there were 15 honorary masseurs and masseuses. The board of directors had proposed that the Government, instead of re-building the Coast Hospital at a cost of £40,000, should send the patients to the Royal Prince Alfred Hospital at an annual payment of £50 a bed, the present cost at the Coast Hospital being £65 a bed. The Premier, in

supporting the adoption of the report, said that the Government had decided to comply with this suggestion. It also proposed to place all the hospitals in the State under the control of a representative board, which would allocate the hospital grant according to individual requirements.—Hospital Saturday in Sydney has become a recognised institution and this year £5546 were collected, an increase of over £600 on the best previous collection.—The inspector of charities for Victoria recently submitted to the Premier a memorandum suggesting the establishment of paying hospitals intermediary between charity hospitals and private hospitals, where the charges would be lower than at the latter and the fees charged by the medical attendants less. The acting Premier has stated that he is not altogether in favour of the suggestion but admits that there is a great deal to be said for it.—At the last meeting—the second held—of the recently formed Hospitals and Charities Association of Victoria it was reported that 32 institutions had joined the association. A joint subcommittee of the association and the Victorian Trained Nurses' Association was appointed to coöperate in arrangements for training nurses, and to deal with all matters arising between the hospital authorities and the nurses. A subcommittee was appointed to inquire into a statement in the report of the inspector of charities that there were seven institutions supported by Government grants and public subscription which treated 40 patients only amongst them and employed 36 persons to attend these 40 patients.—His Excellency the Governor recently opened a new hospital for incurables at Ryde. The institution is entirely due to private philanthropy and began in a very small way.

Australasian Massage Association.

The first annual meeting of delegates to the Australasian Massage Association was opened in Sydney recently, Dr. J. W. Springthorne of Melbourne presiding. The membership of the association was stated to be 302. It was a condition of membership that no one should act as a masseur except under medical supervision and that no member should prescribe remedies unless he were a registered medical practitioner.

Claim by a Chinese Herbalist.

An amusing case was heard in the Central police court, Sydney, on April 16th when a Chinese herbalist proceeded against a former patient to recover £27 odd for services and goods. He had treated him for a sore on the lip, which was subsequently excised by a medical practitioner. The treatment recommended was to rub salt on a cow's nose and then to rub the salt on the patient's lip. The plaintiff was non-suited.

Obituary.

Dr. Roland MacLean of Narracoorte, South Australia, died recently at Seymour, Victoria, where he was spending a holiday. He was only 35 years of age and died from heart failure during a severe attack of influenza.—Mr. Charles Dixon was found dead at Double Bay, Sydney, with a bottle of cyanide of potassium beside him. He was 81 years of age and was stated to be destitute, though he had once been very well off and had lost two fortunes in mining speculations. A verdict of Suicide was returned by the coroner.

June 3rd.

SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of the directors of the above society was held on July 10th, Dr. G. F. Blandford, the President, being in the chair. 21 directors were present. The deaths of Sir William Broadbent and Dr. Robert Barnes were reported; both had held the office of director. The secretary was directed to send letters of condolence to Lady Broadbent and to Mrs. Barnes. Two new members were elected. Since the last quarterly court one of the widows, an annuitant of the charity, had died; her husband paid a life subscription fee of £26 5*s.* and the widow had received in grants the sum of £490. Six letters had been received from widows of medical men asking for relief, but in each instance this had to be refused as their husbands had not been members of the society. The sum of £1300 10*s.* was voted for the half-yearly grants to the 49 widows and 20 orphans at present on the books of the society. Membership is open to any registered medical practitioner who at the time of his election is residing within a 20-mile radius of Charing Cross. Full particulars may be obtained from the secretary at 11, Chandos-street, Cavendish-square, London, W.

Medical News.

UNIVERSITY OF LEEDS.—The degrees of Bachelor of Medicine and Bachelor of Surgery were conferred on July 11th by the Vice-Chancellor on the following:—

James Paley Bibbey and William Laud Dibb.

The Diploma of Public Health has been conferred on the following:—

William Scatterty, M.D. Aberd., and Fred. Augustus Sharpe.

The following pass lists have been issued:—

SECOND EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Part I. Anatomy and Physiology.—C. S. Brown and C. G. K. Sharpe.
Part II. Materia Medica and Pharmacy.—J. P. Brown, T. Elliott, J. B. Fisher, W. S. Hart, H. V. Lamb, N. V. Mitton, B. A. Slocombe, G. V. Stockdale, and N. S. Twist.

FINAL EXAMINATION FOR THE DEGREES OF M.B., CH.B.

Part I. W. H. Butler and H. Vallow.

FIRST PROFESSIONAL EXAMINATION FOR THE DIPLOMA OF L.D.S.

E. Howden and F. C. Wilson.

UNIVERSITY OF GLASGOW.—The following have satisfied the examiners in the fourth (final) professional examination for M.B., Ch.B.:—

Wallace Wright Adamson, George Victor Anderson, Andrew Hamilton Arnott, David Arthur, B.Sc., Herbert Bertram, Robert Inglis Binning, William Brown, M.A., B.Sc., James Cairncross, Thomas Hay Campbell, Robert Peploe Cartwright, Thomas Goodall Copestake, Alexander Johnston Couper, Andrew Donaldson Cowan, James Robert Craig, Charles Adolphus Crichlow, Neilson Davie, Harold Windley Dempster, John Alexander Doctor, Donald Duncan, William Hunter Duncan, Allan Dunsmuir, Leonard John Dunstone, Alexander Wylie Eadie, William Marley Elliott, Archibald Fairley, Thomas Henderson Forrest, Thomas Forsyth, Berkeley Gale, George Garry, James Gemmell, David Gibson, Henry Maxwell Granger, John Vincent Grant, Thomas Purdie Grant, William Cooper Gunn, Lawrence Hislop, Archibald Hogg, Andrew James Hutton, Charles Lawson Kerr, Alexander Tulloh Inglis Macdonald, Neil MacInnes, M.A., Robert M'Inroy, Joseph Bogue Mackay, Thomas Cooper Mackenzie, Allison David M'Lachlan, Donald Cameron Maclachan, Arthur Norman Roy M'Neill, Charles James Colquhoun Macquarie, Carswell Marshall, James Hogg Martin, Horatio Matthews, William Spence Melville, John Clark Middleton, M.A., B.Sc., John Wilson Miller, Thomas Miller, M.A., James Robertson Mitchell, Hugh Morton, James Muir, Robert Charles Muir, Patrick O'Brien, Daniel M'Kinlay Reid, Donald Renton, Murdoch Mann Rodger, Thomas David Coulthard Ross, Alexander Scott, John Macgregor Smith, John Steedman, Campbell Kay Stevenson, Matthew John Stewart, Lawrence Storey, John Anderson Struthers, John Martin Taylor, Robert Scott Taylor, David Alexander Thomson, M.A., Hugh Johnstone Thomson, John Archibald Thomson, Robert Todd, John Turnbull, Martin Turnbull, William Barrie Watson, John Weir, Frank Ritchie Wilson, Samuel Wilson, M.A., William Mitchell Turner Wilson, Thomas Winning, M.A., Garabed Yeghia Yardumian, and Matthew Young.

Women.—Jeannie Montgomery Andrew, Martha Maclean Buchan, Margaret Gardner Forrest, Ella Smith Hill, M.A., Annie M'Crorie, Janet Annie Macvea, Jessie Deans Rankin, M.A., B.Sc., and Jane Isabel Robertson, M.A.

The following passed with distinction in the subjects indicated:—

In (*a*) Surgery and Clinical Surgery, (*b*) Practice of Medicine and Clinical Medicine.—David Arthur, B.Sc., Hugh Morton, and Matthew John Stewart.

In (*a*) Surgery and Clinical Surgery, (*b*) Midwifery.—William Cooper Gunn.

In Surgery and Clinical Surgery.—Jeannie Montgomery Andrew, William Brown, M.A., B.Sc., Martha Maclean Buchan, Thomas Hay Campbell, James Robert Craig, Charles Adolphus Crichlow, Donald Duncan, William Marley Elliott, Archibald Fairley, Margaret Gardner Forrest, Samuel Nichol Galbraith Berkeley Gale, James Wilfred Georgeson, Henry Maxwell Granger, Thomas Purdie Grant, James Dow Gray, Ella Smith Hill, M.A., Archibald Hogg, Andrew James Hutton, Thomas Miller, M.A., Daniel M'Kinlay Reid, George Waugh Scott, John Steedman, Campbell Kay Stevenson, Lawrence Storey, David Alexander Thomson, M.A., Hugh Johnstone Thomson, Samuel Wilson, M.A., and Matthew Young.

In Practice of Medicine and Clinical Medicine.—John M'Vittie and Horatio Matthews.

In Midwifery.—Allison David M'Lachlan and Alexander Scott.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Morgenroth has been recognised as *privat-docent* of Hygiene and Dr. F. Nicolai as *privat-docent* of Physiology.—*Breslau:* Dr. Strecker has been recognised as *privat-docent* of Anatomy and Biology.—*Düsseldorf (Academy of Practical Medicine):* Dr. O. Lubarsch has been appointed Professor of Pathological Anatomy in succession to Dr. M. B. Schmidt who goes to Zürich.—*Freiburg:* Dr. W. Straub of Würzburg has been appointed Professor of Pharmacology.—*Geneva:* Dr. O. Beuttner has been appointed Professor of Midwifery and Gynæcology in succession to the late Dr. A. Jentzer.—

Gratz: Dr. Hans Eppinger has been recognised as *privat-docent* of Internal Medicine.—*Strasburg:* Dr. Buer has been recognised as *privat-docent* of Internal Medicine.—*Vienna:* Dr. Karl Funke has been appointed Professor of Surgery in succession to Dr. von Mosetig-Moorhof.—*Zürich:* Dr. Monnier has been recognised as *privat-docent* of Surgery.

CIRRHOSIS OF THE LIVER IN A CHILD.—An inquest was held at the Swansea workhouse on July 12th relative to the death of a male child, aged two years. After hearing the medical evidence the jury returned a verdict that "Death was due to cirrhosis of the liver, caused by alcohol." The coroner severely censured the mother.

CALEDONIAN MEDICAL SOCIETY.—The annual meeting of this society will be held at the Royal Eye Hospital, Bradford, on Thursday, July 25th, under the presidency of Dr. Andrew Little of Bradford. The annual dinner will take place on the same evening in the Midland Hotel, Bradford.

DEATH CAUSED BY SILICATED COTTON.—An inquest was recently held at Plymouth relative to the death of a shipwright who had been working with silicated cotton on board H.M.S. *Minotaur*. The superintendent of Devonport dockyard has now ordered that men using that substance shall wear respirators. These respirators will be made of old bunting, which has been found by experience to be a suitable material.

DONATIONS AND BEQUESTS.—Under the will of the late Dr. Robert Barnes St. George's Hospital will receive £500 and the medical school attached to that institution a like sum. The Epsom College and the "Dreadnought" Seamen's Hospital and St. Thomas's Hospital also receive £500 each. The Royal Maternity Charity will receive £300 and the London Hospital Medical School and the Princess Alice Memorial Hospital, Eastbourne, £200 each.—Lord Kilmorey, chairman of Charing Cross Hospital, has received a second donation of £1000 from Lady Wantage towards the liquidation of the balance due on the building debt.

WEST HAM AND EAST LONDON HOSPITAL.—The foundation-stone of the new building in extension of the present structure is to be laid at 2.30 P.M. on Saturday, July 27th, by the Duchess of Marlborough. The Bishop of St. Albans and the Bishop of Barking, together with the honorary chaplain of the hospital, who has kindly consented that the choir of St. John's Church, Stratford, shall sing a dedicatory hymn, will assist in the ceremony. The architect is Mr. H. Percy Adams. Immediately after the ceremony an "At Home" will be held in the hospital, where light refreshments will be served and a plan of the extension of the existing hospital explained to the visitors.

SCHOOL HYGIENE IN SWITZERLAND.—The Swiss Society for the Study of School Hygiene met recently at St. Gall when the principal subject of debate was the hygiene of the teaching staff. Dr. Sandoz, who opened the discussion with a paper, demanded a medical examination of candidates both on entering and on leaving the training college. He also asked for a survey of the conditions of service in Swiss schools. This survey should be divided into two parts. The medical report should give statistics of mortality and sickness in the several cantons, in the different groups of schools, and among the different classes of teachers. The second part of the inquiry should relate to the social conditions of the teaching profession, the condition of their dwellings, the graduation and amount of their salaries, and the conditions governing insurance and pensions. When these statistics had been collected an attempt should be made through the directors of education to make the conditions of service more uniform in the cantons and to insure that the more salient features of local hygiene should be respected. As regards personal hygiene, Dr. Sandoz advocated the issue of a teachers' vade mecum of information on points particularly important for the profession. In this he was supported by Dr. Zollinger of Zürich, who thought that the training colleges took pupils too early. He wished to see the minimum age of admission raised to 18 years and the hours of professional study reduced to 15–20 per week so that sufficient time might remain for private study and exercise. 15 other speakers took part in the discussion, at the close of which motions were carried to the following effect:—That the attention of educational authorities should be drawn to the care of the teacher's health as being of as much importance as that of the pupil; that all candidates for admission to a training college should be required to pass a medical examination which should be repeated on leaving; that school and personal hygiene should be included in the syllabus of the training college and that the instruction should be given by a qualified medical man. A committee was appointed to approach the Home Office with the view of carrying out a census of teachers and conditions of service and of arranging for the issue of a pocket-book of hygiene for teachers.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Max Schüller of Berlin, whose writings on surgery are known far beyond his own country. He was a pupil of Thiersch and Czermak in Leipsic.—Dr. Emanuel Mendel, medical privy councillor of Berlin.—Dr. Josef Schrank, chief surgeon of police in Vienna and author of various papers on public hygiene.—Dr. Heinrich Jordan, professor of gynæcology in the University of Cracow.—Dr. F. M. Costa of Ajaccio, corresponding member of the Paris Academy of Medicine.

MENTAL ABERRATION OF ENGINE-DRIVERS.—In the *Engineer* of July 12th it is stated that the driver of a freight train standing in the Gare du Nord Station, Brussels, went mad and started the engine at full speed on the line to Antwerp. Regardless of signals the train had passed several stations and had reached Mechlin when the fireman succeeded in overpowering the driver and shutting off steam. We knew of a case many years ago in which an engine-driver on a Welsh railway deliberately drove an engine through the closed doors of an engine-shed. He was not able to explain why he did so and was removed to the county asylum at Abergavenny where he showed no tendency to violence or excitement but ataxia of the legs soon made its appearance.

ROYAL SOCIETY OF MEDICINE: THE VISIT OF THE THERAPEUTICAL SECTION TO OXFORD.—The Therapeutical Section of this society met on July 6th at the University of Oxford, the visit having been arranged for the Therapeutical Society before it dissolved. The members were received at the entrance to Queen's College by Sir Thiselton-Dyer, the first President of the old society. After a glance at the buildings and some of the other colleges he conducted the party to the museum, where Professor W. Osler was waiting ready to point out the beauties of the library and to show the way to the laboratories. The first visited was that of Professor F. Gotch, who explained some of his most recent investigations on the action of the heart. He pointed out that his predecessor, Professor Burdon-Sanderson, had conducted his experiments on the empty heart, which revealed that the ventricular contraction began at the base and terminated at the apex. However, Professor Gotch had, by delicate electrical experiments on the active heart *in situ*, shown that the contraction commenced at the base, travelled to the apex, and terminated at the aortic base; this was graphically displayed and many interesting diagrams and photographs were shown. He next demonstrated a means of at once determining the point of near vision of anyone, the method depending on the different focal lengths of the red and violet rays. Dr. W. Ramsden in the same laboratory had arranged a number of beautiful experiments, which he described, determining the separation of solids in the surface layers of solutions and suspensions. Proceeding to the anatomical rooms Professor Arthur Thomson showed a thorax with complete transposition of the viscera and a dissection of a calf's heart displaying to perfection the auriculo-ventricular bundle (His), and demonstrating how important a structure it was; also some enlarged photographs (stereoscopic) of the very early human embryo. In the pathological rooms there was an exhibition of macroscopic and microscopic specimens and Dr. A. G. Gibson gave a demonstration of Jacquet's polygraph (modified) on a lad. Lunch followed in Queen's College and in the afternoon many places of interest, including the Botanical Gardens, were visited. Professor Osler gave a garden party at his home to which all were invited. He had laid out for inspection his rare and interesting books and everyone thoroughly enjoyed the privilege of examining them. The section dined in the evening at Queen's College. Sir James Sawyer proposed the health of the President, Dr. T. E. Burton Brown, C.I.E., and referred to the good work done by the society of which he was the "father" and the fitness of his being the first

President of the new section. Dr. Burton Brown, in reply, thanked the society of Queen's College for its courtesy in inviting the members of the Therapeutical Section to that College and in placing rooms at the disposal of those who desired to remain until Monday. Dr. R. C. B. Wall, through whose good offices the visit was undertaken, acted as cicerone and showed every attention to the party.

WESTERN EYE INFIRMARY, EXETER.—Colonel Garratt, on July 12th, in the presence of a large gathering, formally unveiled a memorial erected in the main hall of the institution, to the memory of the late Miss G. Kinninmont, for 16 years matron of the infirmary, who died suddenly last year. The memorial consists of a tablet of alabaster, richly ornamented, bearing a suitable inscription.

ROYAL COLLEGE OF SURGEONS IN IRELAND: FELLOWSHIP EXAMINATION.—Notice is hereby given that on and after Jan. 1st, 1910, all examinations for the Fellowship of this College will be conducted under the scheme of examination now known as Grade 1. No candidate after the above date will in any circumstance be admitted to examination for the Fellowship of this College under the scheme now known as Grade 2, which will then cease to be used.

ST. HELENA.—In his report for the year 1906 Lieutenant-Colonel H. L. Gallwey, Governor of the island, states that the estimated civil population on Dec. 31st was 3526. There were 118 births during the year, of which three were stillborn and 37 illegitimate. Now that the troops have been withdrawn the number of births under the latter category will undoubtedly be less in future. The birth-rate works out at 33·1, as against 35·9 in 1905. 46 deaths occurred during the year, the death-rate being 11·9 per 1000, as compared with 14·5 in 1905. The general health of the colony was excellent and there were no epidemics of any zymotic disease. There were 104 admissions to the hospital during the year, this being the smallest number recorded since the inauguration of the institution. Until a few years ago the islanders had an aversion to going to hospital. Their feelings on this point, however, are quite the reverse now, thanks mainly to the excellent and efficient system under which the hospital is conducted by the colonial surgeon, Dr. W. J. J. Arnold, and his staff of nurses. This tendency of the islanders to go to hospital when necessary, instead of avoiding such a step, is satisfactory under the conditions now existing in St. Helena. When the troops were withdrawn in October, 1906, the colony was left with only one medical man and upon his shoulders falls the responsibility of the medical care of the population. Consequently, it is desirable to move all serious cases to the hospital where they can be immediately under the eyes of the colonial surgeon and the nursing staff. The hospital sustained a severe loss during the year by the retirement through illness of Miss Williams, the lady superintendent of the staff, who had occupied that position for over 11 years. She has been succeeded by Miss Hart, late matron at Kokstad Hospital, South Africa. The colonial surgeon was granted six months' leave of absence, during which period his duties were performed by Mr. H. E. Scoones.

INTERNATIONAL HOUSING CONGRESS.—The annual congress (the eighth) will take place this year in London. The previous meeting places have been Paris, Antwerp, Bordeaux, Brussels, Paris again, Düsseldorf, and Liége. The president of the congress will be Sir Henry Campbell-Bannerman, and there are numerous notable vice-presidents. The congress will be held in the Caxton Hall, Caxton-street, Westminster, and the programme has been arranged to cover from August 3rd to 10th. It is hoped that the Right Hon. John Burns, M.P., President of the Local Government Board, will officially welcome the delegates at the opening session. On August 8th the delegates will leave London and will pay visits on that day and the two following days to Sheffield, Liverpool, Port Sunlight (Birkenhead), and Bournville (Birmingham) to inspect the Cottage Exhibition and municipal housing schemes, the dwellings for the poorest of the poor, and the model villages. On one of the days during the congress a visit will be paid also to the Cottage Exhibition and first garden city at Letchworth and visits will also be made to inspect municipal and other housing schemes in and around London. Invitations to send official representatives have been given to the Governments of France, Germany, Austria, Belgium, Holland, Italy, Sweden, Norway, Spain, and other European countries, the United States, South America, Japan, and the Governments of the British Colonies, and also to the provincial, county, and town councils of those countries, to the local authorities throughout Great Britain and Ireland, and to various associations and private persons specially interested in the subject of housing. The membership subscription is £1 1s. for each delegate or member. The chairman is Mr. William Thompson, the vice-chairman is Mr. T. C. Horsfall, and the secretary is Mr. Henry R. Aldridge, all of whom are British members of the International Housing Committee. Councillor W. G. Wilkins, J.P., will act as treasurer to the congress. Any communications on the subject will reach the secretary if addressed to him at 432, West Strand, London, W.C.

WATER-SUPPLY OF BODMIN.—The Local Government Board has declined to sanction the water scheme proposed by the Bodmin (Cornwall) district council on the ground of inadequacy.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Alton Military Hospital Bill.

THE Alton Military Hospital Bill, which is being proceeded with as a private Bill, has been read a second time in the House of Commons.

The University of Durham Bill.

The University of Durham Bill, which has been introduced into the House of Commons by Mr. HILLS, makes several proposals "to enable the University to discharge its present functions more efficiently." It is proposed to set up a body of seven commissioners whose names are embodied in the Bill. They include the Duke of NORTHUMBERLAND and Sir WILLIAM CHURCH. Their duties under the Bill are to make various regulations of a specified nature with regard to the constituent bodies of the University.

HOUSE OF COMMONS.

WEDNESDAY, JULY 10TH.

Belfast Corporation and the Forster Green Hospital.

Mr. DEVLIN asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been called to the decision of the Belfast Corporation sanctioning an arrangement for ten years with the committee of management of the Forster Green Hospital for Consumption, under which arrangement the hospital authorities were to reserve 25 beds for patients nominated by the corporation and approved as suitable by the medical superintendent of the hospital, the corporation to pay the sum of 35s. per week per bed and two members of the corporation to be on the board of governors of the hospital; whether he was aware that the Forster Green Hospital was situated in a hollow and was built and equipped over 30 years ago, before the value of an elevated situation and open-air treatment for consumption became recognised by the best authorities on the disease, and at the present time was quite unsuitable for the treatment of tuberculous patients; whether he was aware that the sum agreed upon was 10s. per bed per week in excess of that which was the basis of negotiations between the parties in 1903, and that the opinion of an expert taken by the corporation on the Forster Green Hospital and site was suppressed by the corporation public health committee, despite the appeals of several councillors for its publication; and whether, seeing that it was estimated that the cost of establishing a municipal consumptive hospital for Belfast on a suitable site and equipped in a thoroughly up-to-date manner for 25 patients, would be £12,500, which would be cheaper than the present arrangement, and that the present arrangement was part of a scheme to help the Forster Green Hospital until the sum of £40,000, on the subscription of which a large bequest was contingent, was forthcoming, and that the death-rate from consumption in Belfast was exceptionally high, and seeing that the present arrangement was opposed to the public interest, he would refuse to sanction it and order an inquiry into the whole question.—Mr. BIRRELL (by written answer) replied: The Local Government Board has received an application from the Belfast corporation for sanction to an arrangement with the committee of the Forster Green Hospital on the terms indicated in the first part of the question. A protest has been made to the Board on substantially the same grounds of objection as are recited in the question and the matter is at present under the Board's consideration.

The Housing of the Working-classes.

Sir WALTER FOSTER asked the Prime Minister whether, in consideration of the fact that the Select Committee appointed last year to consider the question of housing reported in December last, and also that a Bill was promised in the King's speech on the opening of Parliament this year, he could give some assurance that a measure for the better housing of the working-classes would be included in the programme for next session.—Sir HENRY CAMPBELL-BANNERMAN furnished the following answer: His Majesty's Government is fully alive to the importance of this question, and my right honourable friend may be assured that it is its intention to introduce legislation dealing with the better housing of the working-classes at the earliest practicable moment. I may add that no effort on its part will be wanting to frame a measure which shall be adequate to the necessities of the case.

THURSDAY, JULY 11TH.

The Evils of Alcohol and Public Elementary Schools.

Mr. WEDGWOOD asked the President of the Board of Education whether his attention had been drawn to a volume by Sir Victor Horsley and Dr. Mary Sturge, entitled "Alcohol and the Human Body," in which it was stated that evidence was steadily accumulating that the stunted frames and weak development of many poor children were at any rate partly due both directly and indirectly to the action of alcohol; that one of the most frequent causes of evil habits and of sexual immorality among young people was the taking of alcohol; that for the sake of national morality as well as physique it was clear that in no form whatever should alcohol be used by the young, either in childhood or adolescence; if he would say what teaching, if any, was given on the subject in the public elementary schools; and whether he would prescribe and enforce lessons thereupon in all schools over which he had any authority.—Mr. MCKENNA replied: The answer to the first part of the question is in the negative, but I would draw my honourable friend's attention to Paragraph 7 in the prefatory memorandum to the new code of Regulations for Public Elementary Schools and to Paragraph 4 in the prefatory memorandum to the new Regulations for Training Colleges just issued which will show, I think, that the Board of Education is doing its best to secure adequate and efficient teaching in the important matters referred to in the honourable Member's question.

The Plague in India.

Dr. RUTHERFORD asked the Secretary of State for India whether he had yet received answers from the Government of India to his questions in April in reference to the special medical staff deputed to combat the plague.—Mr. MORLEY answered: I have heard from the Government of India that local governments are engaged in collecting the needful information, but as the statistics wanted extend over a series of years they cannot be procured without some delay. The subject of the plague is engaging my particular attention and full papers will shortly be laid on the table.

The Plague in Egypt.

Dr. RUTHERFORD asked the Secretary of State for Foreign Affairs whether he could say what was the number of deaths from plague in Egypt during January, February, March, April, May, and June, respectively, this year.—Sir EDWARD GREY replied: The figures are—January, 8; February, 46; March, 204; April, 147; May, 184; and June (up to 17th), 111.

Medical Inspection of School Children.

In the course of the discussion on the Education Vote in Committee of Supply several Members urged the President of the Board of Education to make provision for organising a central medical department to assist and guide local authorities in instituting the medical inspection of school children.—Mr. MCKENNA, in reply, said that if the Bill dealing with this subject passed it was the intention of the Board of Education to establish a medical bureau which would guide and advise the local authorities as to the nature of the work they would have to do under this Act. He hoped that when the names were published the House would be fully satisfied.

MONDAY, JULY 15TH.

Allowances to the Royal Army Medical Corps.

Mr. CAMPBELL asked the Secretary of State for War whether he was aware that officers of the Royal Army Medical Corps, under the substantive rank of colonel but holding the appointment of senior medical officer in a command in India, had been refused the additional daily allowance of 5*s.* to which such officers were by the terms of Paragraph 4 of the Army Order of Jan. 10th, 1907, expressly entitled if serving abroad, and that such refusal had been justified on the ground that service in India was not service abroad within the meaning of the Army Order; and, if so, seeing that such a construction was a direct violation of the letter as well as of the spirit of the Order in question he proposed to take any and, if any, what action in the matter.—Mr. HOBHOUSE (the Under Secretary for India) answered: The Army Order referred to published a Royal Warrant modifying certain paragraphs of the Pay Warrant of the army, the preamble of which specially exempts the Indian Empire from the sphere within which the warrant is in force. Officers of the Royal Army Medical Corps serving in India receive special Indian rates of pay as laid down in the Indian army regulations and it is not proposed to disturb this arrangement.

The Belfast Health Commission.

Mr. SLOAN asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware of the fact that the Belfast Health Commission, consisting of Colonel Harding, an ex-Lord Mayor of Leeds; Dr. Mair, a medical inspector of the Local Government Board of England; Dr. Chalmers of Glasgow; and two inspectors of the Irish Local Government Board, appointed on Feb. 11th, 1907, to inquire into the cause of the high death-rate in Belfast, had held 24 sittings, all the evidence at which had been taken on oath, and whether he would state what statutory authority any person or persons other than inspectors of the Local Government Board had to hold inquiries under Section 209 of the Public Health (Ireland) Act, 1878, or to take evidence on oath.—Mr. BIRRELL answered: The number of sittings held so far by the Commission referred to is correctly stated in the question. All the evidence has been taken on oath. There is nothing to prevent other persons from being associated with inspectors of the Local Government Board in holding inquiries under Section 209 of the Public Health (Ireland) Act, 1878. The power of administering an oath is, however, vested only in inspectors and this power has not been exercised by any of the other gentlemen on the Commission.

Epileptics and the Workmen's Compensation Act.

Mr. GULLAND asked the Secretary of State for the Home Department whether he was aware that throughout the country there were many workers subject to epileptic fits; that under the Workmen's Compensation Act the insurance companies would not undertake the risk of insuring them against accidents; that, contracting out not being allowed, they were in danger of losing their employment; and what steps, if any, he proposed to take to prevent this class from being deprived of the opportunity of earning a livelihood.—Mr. GLADSTONE said in reply: I have no official information on the matters referred to in the question. I believe, however, it is a fact that quite apart from the Workmen's Compensation Act epileptics have difficulty in finding employment. The new Act may aggravate that difficulty, though such cases might have been provided for under an amendment which I moved on the report stage of the Bill and which after being left to the judgment of the House was rejected. The matter is one which obviously cannot be considered with reference merely to the effects of the Act, and as my honourable friend will be aware the whole question of the treatment of the feeble minded, including epileptics, is under the consideration of a Royal Commission the report of which may be expected shortly.

The International Congress on School Hygiene.

Dr. RUTHERFORD asked the President of the Board of Education whether His Majesty's Government would invite foreign powers to send delegates to the International Congress on School Hygiene to be held in London next month.

Mr. ALDEN further asked the Secretary to the Board of Education whether he would consider the possibility of giving an official reception to the delegates of the International Congress on School Hygiene.

Mr. RAMSAY MACDONALD also asked the right honourable gentleman whether the Board was taking any official part in the International Congress on School Hygiene; whether the Board had approached the Foreign Office with a view of securing the official representation of foreign countries at the Congress; whether any communication between the two offices on this subject had taken place; and what steps his department had taken to carry out the promise made by its representative at Nuremberg, as printed in the transactions of the Congress, that the Government would officially recognise the Congress and would feel honoured by its presence in London.—Mr. MCKENNA (in replying to the three questions together) said: The Board of Education, while considering it inadvisable to comply with the suggestion of the hon. Member for Tottenham, is greatly interested in the approaching Congress on School Hygiene and has intimated its intention of sending three of its officers to attend it. I hope to derive much information from its proceedings and I have done my best to facilitate its deliberations by arranging for special investigations and reports to be prepared in elucidation of some important matters that will come under discussion. The various foreign countries have already received invitations which were forwarded to the respective Governments through the Foreign Office. A considerable number have signified their intention to send representatives. The University of London is finding rooms for the Congress and I am also placing certain rooms at South Kensington at its disposal. I have thus been able to carry out to the fullest extent all that was promised by the Board's representative at the Nuremberg conference.

TUESDAY, JULY 16TH.

The Plague in India.

Dr. RUTHERFORD asked the Secretary of State for India what was the number of deaths from plague during June in the Punjab and in the whole of India; and what was the total for the six months in the Punjab and in India.—Mr. MORLEY replied: The figures for June are: Punjab, 58,821 deaths; whole of India, 69,064. For six months ending June: Punjab, 632,953; whole of India, 1,060,067.

The Registration of Nurses.

Mr. HART-DAVIES asked the Secretary of State for the Home Department whether he would consider the advisability of establishing a Government system of certificates and registration of trained nurses.—Mr. GLADSTONE answered: This matter has been under consideration for some time, but serious difficulties stand in the way of the establishment of any such system as is proposed. I am not prepared to take any action in the matter.

WEDNESDAY, JULY 17TH.

The Increase of Trachoma.

Mr. LEVERTON HARRIS asked the Secretary of State for the Home Department whether his attention had been drawn to the increase in cases entering hospitals suffering from trachoma, and what steps were being taken to prevent the spread of this contagious disease.—Mr. GLADSTONE answered: Trachoma comes within my jurisdiction only so far as the operation of the Aliens Act is concerned. It is a disease on account of which alien passengers who are subject to the provisions of that Act may be excluded from this country, and since that Act came into force numerous cases have been excluded.

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Modern Drainage Inspection and Sanitary Surveys. By Gerard J. G. Jensen, C.E. Second edition, revised and enlarged. Price 2s. 6d. net.

SPRINGER, JULIUS, Monbijouplatz, 3, Berlin.

Mikroskopie und Chemie am Krankenbett. Für Studierende und Aerzte bearbeitet. Von Professor Dr. H. Lenhartz, Direktor des Eppendorfer Krankenhauses in Hamburg. Fünfte, wesentlich umgearbeitete Auflage. Price, geb., M.9.

TREWBY, ARTHUR, Fenton House, Hampstead Heath, London.

Healthy Boyhood. By Arthur Trewby, M.A. With an Introduction by Sir Dyce Duckworth, M.D., LL.D., and a Foreword by Field-Marshall Earl Roberts, K.G., K.P., V.C., O.M., P.C., G.C.B., G.C.S.I., G.C.I.E., D.C.L., LL.D. (Copies may be obtained on written application to the Author.) Price 1s. 6d., post free.

UNIVERSITY CORRESPONDENCE COLLEGE, Burlington House, Cambridge. (32, Red Lion-square, Holborn, London, W.C.)

Matriculation Directory. No. XLVI., June, 1907. With Articles on Text-books. Price 1s. net.

WOOD, WILLIAM, AND COMPANY, 51, Fifth-avenue, New York.

American Practice of Surgery. Editors: Joseph D. Bryant, M.D., LL D., and Albert H. Buck, M.D., of New York City. Complete in eight volumes. Volume III. Price not stated.

WRIGHT, JOHN AND CO., Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

Through Jamaica with a Kodak. By Alfred Leader. With Introductory Notes by His Grace the Archbishop of the West Indies and Sir Alfred L. Jones, K.C.M.G. Price 6s. net.

The Clinical Use of Prisms and the Decentring of Lenses. By Ernest E. Maddox, M.D., F.R.C.S. Ed., late Syme Surgical Fellow of Edinburgh University; Ophthalmic Surgeon, Royal Victoria and Royal Boscombe Hospitals, Edinburgh. Fifth edition, revised and enlarged. Price 5s. 6d. net.

A Pharmacopœia for Diseases of the Skin. Edited by James Startin, Senior Surgeon to the London Skin Hospital, Fitzroy-square. Sixth edition. Price 2s. 6d.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week such information for gratuitous publication.*

COOMBS, CAREY F., M.D., B.S. Lond., has been appointed Demonstrator in Dental Bacteriology at University College, Bristol.

DIMOCK, HORACE, M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant House Surgeon at Addenbrooke's Hospital, Cambridge.

DOWLING, E. A. G., L.R.C.P., M.R.C.S., L.D.S., has been appointed Lecturer in Dental Anatomy, Physiology, and Dental Histology at University College, Bristol.

ELGOOD, OLIVE, M.S. Lond., has been appointed Honorary Anæsthetist to the Birmingham and Midland Dental Hospital.

EVANS, WILLIAM OWEN, L.R.C.P., L.R.C.S., L.M. Edin., L.F.P.S. Glasg., has been appointed District Medical Officer and Medical Officer to the Workhouse by the Pontardawe (Glamorganshire) Board of Guardians.

EYRE, J. W. H., M.D., M.S. Durh., has been appointed Bacteriologist to Guy's Hospital.

FRIEND, JULIUS, L.S.A., has been appointed Medical Officer to the No. 2 District by the Leeds Board of Guardians.

HITCHCOCK, NORMAN, M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Resident Medical Officer to the Brixton Dispensary.

JONES, JOHN ARNOLD, M.B., Ch.B. Vict., F.R.C.S. Edin., has been appointed Honorary Assistant Aural Surgeon to the Manchester Eye and Ear Hospital.

LOCHRANE, FRANK J., M.D., B.S. Glasg., has been appointed Honorary Gynæcologist to the Derbyshire Royal Infirmary.

MCEWAN, PETER, M.B., Ch.B., F.R.C.S. Edin., has been appointed Resident Surgical Officer at the Bradford Royal Infirmary.

PEDLEY, F. NEWLAND, F.R.C.S. Eng., L.D.S., has been appointed Consulting Dental Surgeon to Guy's Hospital.

PERRY, FREDERICK W., L.D.S., has been appointed Demonstrator in Dental Anatomy, Physiology, and Dental Histology at University College, Bristol.

PILLIN, H. L., L.D.S. R.C.S. Eng., has been appointed Dental Surgeon to Guy's Hospital.

PRICE, HENRY J., F.R.C.S. Eng., has been appointed Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 38, and to be attached more particularly to Braintree, Chelmsford, Colchester, Dunmow, Halstead, Harwich, and Maldon County Courts.

ROWLANDS, R. P., F.R.C.S. Eng., M.S. Lond., has been appointed Assistant Surgeon-in-Charge of the newly sanctioned Orthopædic Department at Guy's Hospital.

WATSON, C. GORDON, F.R.C.S. Eng., has been appointed Surgical Registrar to St. Bartholomew's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM, UNIVERSITY OF.—Walter Myers Travelling Studentship, Value £150.

BOLINGBROKE HOSPITAL.—Assistant Surgeon.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100.

CAMBRIDGE, CAMBRIDGESHIRE LUNATIC ASYLUM, Fulbourn.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and attendance.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Physician for six months. Salary £30, with board, residence, and laundry.

CARMARTHENSHIRE INFIRMARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with apartments, board, attendance, &c.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant for three months.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician, for six months. Salary at rate of £50 per annum, with board, washing, and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon for six months, renewable. Salary £60 per annum, with rooms, board, washing, and attendance.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with apartments, board, fuel, and lights.

DOVER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary £100 a year, with board, lodging, and washing.

EGYPT, PUBLIC HEALTH DEPARTMENT.—Sub-Inspector of Ophthalmic Hospitals.

GLOUCESTER, GENERAL INFIRMARY AND THE GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeoncy for six months. Salary at rate of £30 per annum, with board, residence, and washing.

HALIFAX, ROYAL HALIFAX INFIRMARY.—Second House Surgeon. Salary £100 per annum, with residence, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, House Surgeon, Assistant Casualty Officer.

HULL, ROYAL INFIRMARY.—Casualty House Surgeon. Salary £50, with board and lodging.

ITALIAN HOSPITAL, Queen-square, London, W.C.—Honorary Assistant Physician.

LEEDS INFECTIOUS DISEASES HOSPITAL, Seacroft.—Assistant Resident Medical Officer. Salary £150 per annum, with board, lodging, and attendance.

LEEDS UNION INFIRMARY, Beckett-street.—Assistant Medical Officer, unmarried. Salary £120 per annum, with board, washing, apartments, and attendance.

LENZIE, WOODILEE ASYLUM.—Junior Assistant Medical Officer. Salary £125 per annum, with board, washing, &c.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary £30, with board, residence, and washing.

LISTER INSTITUTE OF PREVENTIVE MEDICINE.—Jenner Memorial Studentship. Value £150.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Resident Pathologist and Registrar. Salary £100, with board and residence.

LONDON HOSPITAL, Whitechapel, E.—Surgeon-Dentist.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary £80 per annum, with board, residence, and laundry.

NORFOLK AND NORWICH HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing. Also Two Assistant House Surgeons for six months. Salary £20, with board, lodging, and washing.

NORWICH, JENNY LIND INFIRMARY FOR CHILDREN, Unthank-road.—Resident Medical Officer (female). Salary £50 per annum, with board, residence, and laundry.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—House Surgeon, also Junior House Surgeon, both for six months, and unmarried. Salaries at rate of £80 and £40 per annum, with board, &c.

PERTH ROYAL INFIRMARY.—House Surgeon. Salary £60, with board.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months, renewable. Salary £50, with board, residence, and washing.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Honorary Anæsthetist.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone road, N.W.—Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

ROTHERAM HOSPITAL AND DISPENSARY.—Senior House Surgeon, also Assistant House Surgeon. Salary £110 and £80 per annum respectively, with rooms, commons, and washing.

ROYAL DENTAL HOSPITAL, Leicester-square, W.C.—Clinical Pathologist and Demonstrator on Bacteriology. Stipend £75 a year.

ROYAL EYE HOSPITAL, St. George's-circus, S.E.—Refraction Assistant. Salary £40 per annum. Also Clinical Assistants.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—Honorary Assistant Anæsthetist.

SALFORD UNION INFIRMARY, Hope, Pendleton.—Resident Medical Officer. Salary £130 per annum, with apartments and attendance.

STAFFORD, STAFFORDSHIRE COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £150, rising to £200, with apartments, board, and washing.

STOCKPORT INFIRMARY.—Assistant House and Visiting Surgeon. Salary £80 per annum, with board, washing, and residence.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon. Salary £50 per annum, with board, apartments, and washing.

SUNDERLAND INFIRMARY.—House Physician and Pathologist, also House Surgeon. Salary in each case £80 per annum, with board, residence, and washing.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, apartments, gas, firing, and attendance.

WEST BROMWICH DISTRICT HOSPITAL.—Senior House Surgeon, unmarried. Salary £110 per annum, with, board, residence, and laundry. Also Assistant House Surgeon, unmarried. Salary £75 per annum, with board, residence, and laundry.

WEST HAM INFIRMARY, Whipps Cross-road, Leytonstone, N.E.—Medical Superintendent. Salary at rate of £700 per annum, with house, light, and coal.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Anæsthetist.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £120 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

DAY.—On July 12th, at Wetherby, Yorkshire, the wife of W. F. L. Day, M.B., B.C., M.R.C.S., L.R.C.P., of a son.

KEELING.—On July 12th, at Market Bosworth, Nuneaton, the wife of Hugh N. Keeling, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

NEWBOLT.—On July 16th, at 42, Catharine-street, Liverpool, the wife of George Palmerston Newbolt, F.R.C.S., of a daughter.

THOMPSON.—On July 16th, at 3, Park Place-gardens, Paddington, W., the wife of Dr. Peter Thompson, King's College, London, of a son.

MARRIAGE.

GLANVILLE—BELL.—On July 11th, at Hampstead Parish Church, by the Rev. Maurice E. Hoets, vicar of Weston, Bath, uncle of the bride, assisted by the Rev. Brook Deedes, vicar of the parish, William M. G. Glanville, M.B., B.Ch. Oxon., of Guyon House, Hampstead, elder son of the late Rev. J. F. M. Glanville and of Mrs. Glanville of Bristol, to Muriel, eldest daughter of Edward Bell of The Mount, Hampstead.

DEATH.

DUNSMURE.—On July 15th, at Queen-street, Edinburgh, James Dunsmure, M.D., LL.D., F.R.C.S.E.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HORSE *v.* OX TONGUE.

THE medical officer of health of Stepney, Mr. D. L. Thomas, draws attention in a recent report to the fact that a horse's tongue is hardly ever seen exposed for sale as cat's meat. He asks, what happens to all the tongues of all the horses slaughtered in London every year. There should be no difficulty in distinguishing between the two, for the tongue of the ox has a narrow end and a rough upper surface, while that of the horse has a broad end and a smooth upper surface. In our opinion it is quite possible that many of the tongues sold as ox tongues are really those of the horse. If a tongue be boiled, pickled, smoked, and the outer epithelial surface be removed by scraping we doubt whether anyone could tell if it were that of the horse or the ox. The difference in the shape of the ends is easily concealed by pressing and rolling. We have never consciously eaten the tongue of a horse, but there is no reason why it should not be just as good as that of the ox, provided that both came from healthy animals. Substitution in food is a common trade deception. Thus, so-called turbot is frequently some other fish and in many cases the fish sold as whiting is really the whiting pout and not the silver whiting. The substitute is in this last case just as wholesome and of very nearly the same flavour, but in the case of the turbot no other fish has the same flavour. Nevertheless, the buyer should get what he asks for.

AN ETHICAL POINT.

To the Editors of THE LANCET.

SIRS,—I shall be glad if you will give me your ruling on this case, whether I acted in accordance with the ethical rule of the profession or not. A lady sent her maid to see me a few weeks ago. She was anæmic and had a history of amenorrhœa extending over a period of seven months. I asked if there was any chance of her being pregnant. This she with great warmth denied. I gave an aperient iron mixture and when seeing her mistress did not mention my suspicion. I stated she was being treated for the anæmia. Last week I was hurriedly summoned and found the lady from home and the maid in labour. When told her condition the maid said that it was quite impossible. I sent her home and now the mistress says it was my duty to mention my suspicion to her as she was paying the fee.

I am, Sirs, yours faithfully,

July 14th, 1907. M.D.

*** The duty of the medical man seems to us to be first towards his patient. We know the difficulty which arises when applying this rule in cases where an employer is the client and is paying the patient's fees, but we still consider that the rule holds good. We think M.D. would have been wrong to mention his suspicion.—ED. L.

A BLATANT ADVERTISEMENT.

WE have received from a medical correspondent a leaflet which he says was handed in at his house. This leaflet sets out, in the regular quack style, the accomplishments of a Mr. Halliday of Queen-street, Heckmondwike, thus: "Mr. H. being a Surgeon Accoucheur, Licentiate in Midwifery and Diseases of Women and Children of the Coombe Lying-in Hospital, Dublin, Dispensing Chemist, &c., &c., and having been engaged 38 years in the practice of Medicine by Botanic Remedies, is enabled to perform a cure in very many cases when all other treatment has failed." "Mr. H." then proceeds to ask the usual questions of his kind about the symptoms of chronic dyspepsia. "Have you pain or wind on the stomach? Have you Sickness, Headache, Dizziness, Sour Risings in the Mouth after eating, with aching pains between the Shoulder Blades?" and so on. If Mr. Halliday is a Licentiate in Midwifery of the Coombe Lying-in Hospital of Dublin, the authorities of that institution had better point out to him that such advertisement is not suitable. If he declines to alter his ways they might consider the advisability of removing his name from the register of the hospital.

THE HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.

THERE has recently been a good deal of discussion between the staff and governors of the Hastings, St. Leonards, and East Sussex Hospital respecting the qualifications required for the office of physician to the hospital. Until recently the rule regulating the appointment ran: "No person shall be elected to the office of physician unless he be a Fellow, or Member by examination, of the Royal College of Physicians of London, Edinburgh, or Ireland, and be a graduate in medicine of one of the Universities of the United Kingdom, and be also duly registered under the 'Medical Acts.'" Until 1904 the same rule applied to the assistant physician, but a difficulty having then arisen in filling that office it was agreed that a medical degree of the United Kingdom should be made a sufficient qualification for it. The matter was recently revived by the resignation of Dr. Frederick Bagshawe after 35 years' service, when there was found to be no active practitioner in the town with the necessary qualification for the post of physician. The whole of the hospital

staff, with the exception of Dr. Bagshawe, was in favour of rescinding the "Membership" qualification, as was the general body of practitioners in the town, who opposed the introduction of another medical man for the sole purpose of filling a hospital post. On July 4th an extraordinary meeting of governors was held at the hospital to consider the motion that in the above rule the word "or" should be substituted for the word "and." There was a large attendance which was addressed by Mr. Cecil Christopherson who proposed the motion and other members of the hospital staff and governing body who supported it. Dr. Bagshawe, Dr. Norman Moore, and Lieutenant-Colonel Whittle spoke against it, arguing that the hospital would lose some of its status by the proposed alteration. The meeting was, however, thoroughly convinced by the arguments in favour of the change, the chief of which consisted in a citation of the arrangements at similar principal hospitals and its expediency in meeting the local professional conditions. It was agreed, moreover, that the hospital could be most efficiently conducted by medical graduates at present practising in the town. The motion was accordingly carried by a large majority.

COLOTOMY—CONSTIPATION.

To the Editors of THE LANCET.

SIRS,—Would any of your readers kindly suggest drugs or other treatment for a colotomy case (the operation was *not* for malignant disease) where the bowels are obstinately constipated and not responsive to even strong drugs—e.g., two-thirds of a grain each of aloin and jalapin at bed-time. The effect of cascara is uncertain and unsatisfactory and calomel (one or two grains) followed by saline too purgative, producing liquid evacuations only. Dietary with fruits, vegetables, and brown bread is useless for a daily move. What is required is a drug or treatment which will produce daily one or two pultaceous motions before midday. Is it possible to adopt any treatment which would achieve this end? The general health of the patient is fair.

I am, Sirs, yours faithfully,

July 15th, 1907. THE SUFFERER (A MEDICAL MAN).

A GARBAGE MONGER HEAVILY FINED.

Ernest Henry Harrison, a butcher of Holbeach St. John's, Lincolnshire, was recently fined £20 at the Guildhall police court in respect of each of three carcasses of pigs consigned by him to the London Central Meat Market. The evidence of Dr. W. Collingridge was that when he saw the carcasses they were "obviously" unfit for human food, and even the defendant, who swore that he believed them to be sound, admitted that when he sent them he realised that they were not of prime or first-class quality. The alternative of going to prison for a month was given him should he not pay the fines, amounting to £60 with £4 14*s.* 6*d.* costs, inflicted by Alderman Sir George Smallman who was informed before he passed sentence that the defendant had been cautioned several times as to the doubtful quality of meat which he had consigned to the market.

A PLEA FOR VENESECTION.

To the Editors of THE LANCET.

SIRS,—The painful incident, which has just occurred, of a Member's sudden death in the House of Commons tragically draws attention to the reluctance of the medical profession nowadays to practise venesection. Quoting from the papers I learn that "Sir Alfred looked very flushed" and that "a hypodermic injection of ether was made.' Without doubt such a patient 80 years ago would have been bled freely, and probably with benefit. The article under "Looking Back" in your journal of June 15th is instructive in comparison.

I am, Sirs, yours faithfully,

July 10th, 1907. G. P.

A STUDENT'S COMPLAINT.

To the Editors of THE LANCET.

SIRS,—In these times when the medical student has so much reading to do his labours are added to by many publishers putting books before him which are anything but a comfort to read. They use shiny paper, the type is too close together, is too faint and indistinct. The "thick down-strokes and thin up-strokes" kind of letter is distinctly irritating to the sight. Americans and Germans err more than we English but I am afraid the tendency is growing here to imitate their book faults. If your reviewer when noticing books in your columns would condemn all books sent to him which were not printed upon dull paper and with good, *square*, *heavy* type he would do a great service to not only the reader but to the authors themselves whose labours are often spoilt by the printing and paper of the books they write. Some think that if a large type is used that is sufficient. It is not the size but the shape of the letter which makes for distinctness. The idea seems to be nowadays to cram as many letters into a line as possible.

I am, Sirs, yours faithfully,

July 13th, 1907. SIGHT NORMAL.

*** We sympathise with the criticisms of our correspondent, who will find some remarks bearing upon the subject in THE LANCET of Oct. 20th, 1906. The use of shiny paper is rendered necessary by the very general employment of half-tone blocks for illustrations. These are much cheaper and in some cases more satisfactory than the old line blocks, and there is a very considerable advantage to the reader in having the illustrations in the text. It is difficult therefore to suggest a remedy, though every endeavour should be made to use the more legible kinds of type, and in this respect, as our correspondent says, our books compare favourably with foreign publications.—ED. L.

THE COST OF A UNIFORM FOR THE ARMY MEDICAL RESERVE.

To the Editors of THE LANCET.

SIRS,—In answer to your correspondent's query in THE LANCET of June 29th, the articles required are: Khaki breeches and tunic, one pair puttees, six collars for uniform, one pair brown boots with plain toe-caps (heavily nailed), forage cap, and Sam Browne belt. The cost comes to under £10. No sword is required, and to get one is merely wasting £3 5*s.* Officers should take down their civilian evening dress and a lounge suit. If they do not spend much on outside amusements, such as tennis, boating, &c., they will make a clear profit of about £24 on the two months besides having a very good time.

I am, Sirs, yours faithfully,

July 15th, 1907. A. B. C.

SPEED VERSUS COMFORT ON RAILWAYS.

To the Editors of THE LANCET.

SIRS,—Referring to a letter under this heading in THE LANCET of July 6th, signed "An Occasional Traveller," and his reference to my 24 hours' drive at Brooklands, my drive was undertaken for the purpose of making some interesting tests: first, as to whether one person could give the necessary concentration to drive 60 m.p.h. for 24 hours continuously; and secondly, to prove that a British made motor-car could travel at a high rate of speed for a longer time continuously than any other vehicle had ever run during the history of the world. Both these points were proved, and I think it was no disadvantage to the whole British motor industry that the drive was undertaken.

Your correspondent's statement that he could make a motor-car travel a greater distance without a driver is interesting, and I shall be very pleased to lend him a car similar to that which I used if he will undertake the test he suggests he can make forthwith. Personally, I doubt his ability to make good what he suggests he can do.

I am, Sirs, yours faithfully,

New Burlington-street, London, W., July 15th, 1907. S. F. EDGE.

Alpha.—We are sorry to be unable to construe the meaning of the figures.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (24th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.).

THURSDAY (25th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (27th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (23rd).—MEDICO-LEGAL SOCIETY (22, Albemarle-street, W.).—8.15 P.M.: Annual General Meeting. Election of Officers and Council. Discussion on the Teaching of Medical Jurisprudence in Paris and in London (opened by Dr. G. Pernet).

THURSDAY (25th).—MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND (11, Chandos-street, Cavendish-square, W.).—9.30 A.M.: Council Meeting. 11 A.M.: Annual Meeting. Election of Officers and Council. 2 P.M.: Address:—The President (Dr. P. W. MacDonald). Paper:—Dr. C. C. Easterbrook: The Sanatorium Treatment of Active Insanity by Rest in Bed in the Open Air 7.15 for 7.30 P.M.: Annual Dinner at the Whitehall Rooms, Hôtel Metropole.

FRIDAY (26th).—MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND (11, Chandos-street, Cavendish-square, W.).—11 A.M.: Discussion on Psychiatry as a Part of Public Medicine (introduced by Dr. T. S. Clouston). Clinical Demonstration and Paper:—Dr. A. Wilson: The Psychology of Crime. Paper:—Dr. H. Devine: A Case of Katatonia in a Congenital Deaf Mute (illustrated with lantern slides). 2 P.M.: Communication.—Dr. W. F. Robertson and Dr. G. D. McRae: Observations on the Treatment of General Paralysis and Tabes Dorsalis by Vaccines and Anti sera. Paper:—Dr. L. C. Bruce: Clinical Observations on Certain Cases of Mental Depression.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (22nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eye. 2.30 P.M.: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—Cliniques:—9.30 A.M.: Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Medical Out-patient (Dr. Whipham); Throat, Nose, and Ear (Mr. Carson); X Ray (Dr. Pirie).

TUESDAY (23rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—10 A.M.: Dr. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. X Rays. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—Cliniques:—10.30 A.M.: Medical Out-patient (Dr. Auld). 2.30 P.M.: Gynæcological Out-patient (Dr. Giles). Surgical Out-patient (Mr. Edmunds). Surgical Operations (Mr. Carson).

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—3.45 P.M.: Demonstration:—Dr. W. Wingrave: Clinical Pathology.

WEDNESDAY (24th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. X Rays. Mr. K. Scott: Diseases of the Eye. 2.30 P.M.: Operations. Dr. D. Robinson: Diseases of Women.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—Cliniques:—2.30 P.M.: Skin (Dr. Meachen), Eye (Mr. Brooks), Medical Out-patient (Dr. Whipham).

THURSDAY (25th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eye. 2.30 P.M.: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—2.30 P.M.: Gynæcological Operations (Dr. Giles). Cliniques:—Medical Out-patient (Dr. Whiting), Surgical Out-patient (Mr. Carson). 3 P.M.: Medical In-patient (Dr. Chappel).

FRIDAY (26th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. X Rays. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—9.30 A.M.: Clinique:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Surgical Operations (Mr. Edmunds). Cliniques:—Medical Out-patient (Dr. Auld), Eye (Mr. Brooks). 3 P.M.: Medical In-patient (Dr. Leslie).

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—3.45 P.M.: Demonstration: Dr. W. Wingrave: Clinical Pathology.

SATURDAY (27th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. X Rays. Mr. K. Scott: Diseases of the Eye. 2.30 P.M.: Operations. Dr. D. Robinson: Diseases of Women.

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Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

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Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1907, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 18th, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
July 12	30·39	N.W.	...	118	70	53	52	59	Fine
,, 13	30·25	W.	...	120	72	52	56	60	Fine
,, 14	30·24	S.W.	...	108	70	58	58	61	Overcast
,, 15	30·34	E.	...	125	78	58	69	64	Fine
,, 16	30·37	N.E.	...	123	75	57	59	61	Fine
,, 17	30 29	N.E.	...	112	69	56	56	58	Overcast
,, 18	30·17	N.E.	...	117	68	54	54	56	Overcast

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